

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L1	20	("5259311").URPN.	USPAT	OR	ON	2005/03/14 14:37
L2	2777	(430/945).CCLS.	US·PGPUB; USPAT; USOCR; DERWENT	OR	OFF	2005/03/14 15:00
L3	1945	(laser or lazer) near3 (engrav\$3)	US·PGPUB; USPAT; USOCR; DERWENT	OR	ON	2005/03/14 15:01
L4	38	2 and 3	US·PGPUB; USPAT; USOCR; DERWENT	OR	ON	2005/03/14 15:04
L5	13	(copper adj potassium adj iodide) or cuki3	US·PGPUB; USPAT; USOCR; DERWENT	OR	ON	2005/03/14 15:01
L6	50453	(copper adj iodide) or cui	US·PGPUB; USPAT; USOCR; DERWENT	OR	ON	2005/03/14 15:01
L7	123092	(potassium adj iodide) or Ki	US·PGPUB; USPAT; USOCR; DERWENT	OR	ON	2005/03/14 15:01
L8	44517	(sodium adj iodide) or NaI	US·PGPUB; USPAT; USOCR; DERWENT	OR	ON	2005/03/14 15:01
L9	228752	(aluminum adj iodide) or AlI	US·PGPUB; USPAT; USOCR; DERWENT	OR	ON	2005/03/14 15:01
L10	367889	(zinc adj sulfide) or Zns	US·PGPUB; USPAT; USOCR; DERWENT	OR	ON	2005/03/14 15:01
L11	919793	(barrium adj sulfide) or Bas	US·PGPUB; USPAT; USOCR; DERWENT	OR	ON	2005/03/14 15:01
L12	14528	alkyl adj sulfonate	US·PGPUB; USPAT; USOCR; DERWENT	OR	ON	2005/03/14 15:01

L13	11644	thioester	US-PGPUB; USPAT; USOCR; DERWENT	OR	ON	2005/03/14 15:01
L14	1513577	(L5 L6 L7 L8 L9 L10 L11 L12 L13)	US-PGPUB; USPAT; USOCR; DERWENT	OR	ON	2005/03/14 15:01
L15	6	14 and 4	US-PGPUB; USPAT; USOCR; DERWENT	OR	ON	2005/03/14 15:05
L16	0	(252/500.1).CCLS.	US-PGPUB; USPAT; USOCR; DERWENT	OR	OFF	2005/03/14 15:06
L17	861	(252/501.1).CCLS.	US-PGPUB; USPAT; USOCR; DERWENT	OR	OFF	2005/03/14 15:07
L18	198	17 and 14	US-PGPUB; USPAT; USOCR; DERWENT	OR	ON	2005/03/14 15:07
L19	1	18 and 3	US-PGPUB; USPAT; USOCR; DERWENT	OR	ON	2005/03/14 15:07
L20	0	(252/518).CCLS.	US-PGPUB; USPAT; USOCR; DERWENT	OR	OFF	2005/03/14 15:08
L21	2	("0000252").PN.	US-PGPUB; USPAT; USOCR; DERWENT	OR	OFF	2005/03/14 15:08
L22	0	(252/518).CCLS.	US-PGPUB; USPAT; USOCR; DERWENT	OR	OFF	2005/03/14 15:08
L23	611	(252/518.1).CCLS.	US-PGPUB; USPAT; USOCR; DERWENT	OR	OFF	2005/03/14 15:08
L24	0	23 and 3	US-PGPUB; USPAT; USOCR; DERWENT	OR	ON	2005/03/14 15:09

L25	160	23 and 14	US-PGPUB; USPAT; USOCR; DERWENT	OR	ON	2005/03/14 15:09
L26	0	25 and 3	US-PGPUB; USPAT; USOCR; DERWENT	OR	ON	2005/03/14 15:09
L27	15994	engraving	US-PGPUB; USPAT; USOCR; DERWENT	OR	ON	2005/03/14 15:09
L28	0	27 and 25	US-PGPUB; USPAT; USOCR; DERWENT	OR	ON	2005/03/14 15:10
L29	32	laser and 25	US-PGPUB; USPAT; USOCR; DERWENT	OR	ON	2005/03/14 15:10
S1	1943	(laser or lazer) near3 (engrav\$3)	US-PGPUB; USPAT; USOCR; DERWENT	OR	ON	2005/03/12 13:17
S2	3593	increas\$3 adj thermal adj conductiv\$	US-PGPUB; USPAT; USOCR; DERWENT	OR	ON	2005/03/12 12:11
S3	4	S1 and S2	US-PGPUB; USPAT; USOCR; DERWENT	OR	ON	2005/03/12 12:15
S4	483	(laser or lazer) near3 additive	US-PGPUB; USPAT; USOCR; DERWENT	OR	ON	2005/03/12 12:16
S5	13	(copper adj potassium adj iodide) or cuki3	US-PGPUB; USPAT; USOCR; DERWENT	OR	ON	2005/03/12 12:12
S6	50443	(copper adj iodide) or cui	US-PGPUB; USPAT; USOCR; DERWENT	OR	ON	2005/03/12 12:12
S7	123085	(potassium adj iodide) or Ki	US-PGPUB; USPAT; USOCR; DERWENT	OR	ON	2005/03/12 12:13

S8	44517	(sodium adj iodide) or NaI	US-PGPUB; USPAT; USOCR; DERWENT	OR	ON	2005/03/12 12:13
S9	228749	(aluminum adj iodide) or AlI	US-PGPUB; USPAT; USOCR; DERWENT	OR	ON	2005/03/12 12:13
S10	367859	(zinc adj sulfide) or Zns	US-PGPUB; USPAT; USOCR; DERWENT	OR	ON	2005/03/12 12:13
S11	918790	(barrium adj sulfide) or Bas	US-PGPUB; USPAT; USOCR; DERWENT	OR	ON	2005/03/12 12:13
S12	14528	alkyl adj sulfonate	US-PGPUB; USPAT; USOCR; DERWENT	OR	ON	2005/03/12 12:14
S13	11643	thioester	US-PGPUB; USPAT; USOCR; DERWENT	OR	ON	2005/03/12 12:14
S14	2	S3 and (S5 S6 S7 S8 S9 S10 S11 S12 S13)	US-PGPUB; USPAT; USOCR; DERWENT	OR	ON	2005/03/12 12:16
S15	1512540	(S5 S6 S7 S8 S9 S10 S11 S12 S13)	US-PGPUB; USPAT; USOCR; DERWENT	OR	ON	2005/03/12 12:16
S16	82	S4 and S15	US-PGPUB; USPAT; USOCR; DERWENT	OR	ON	2005/03/12 12:16
S17	121	S1 and S15	US-PGPUB; USPAT; USOCR; DERWENT	OR	ON	2005/03/12 12:16
S18	6	S17 and S16	US-PGPUB; USPAT; USOCR; DERWENT	OR	ON	2005/03/12 12:19
S19	39	S2 same S15	US-PGPUB; USPAT; USOCR; DERWENT	OR	ON	2005/03/12 12:19

S20	2	S19 and S1	US·PGPUB; USPAT; USOCR; DERWENT	OR	ON	2005/03/12 12:58
S21	2	("0326977").PN.	US·PGPUB; USPAT; USOCR; DERWENT	OR	OFF	2005/03/12 13:02
S22	2	("0326977").PN.	US·PGPUB; USPAT; USOCR; DERWENT	OR	OFF	2005/03/12 13:02
S23	0	("6794115").URPN.	USPAT	OR	ON	2005/03/12 13:07
S24	5	("4323636"   "5259311"   "5474875"   "6037102"   "6326128").PN.	US·PGPUB; USPAT; USOCR	OR	ON	2005/03/12 13:07
S25	51	("4323636").URPN.	USPAT	OR	ON	2005/03/12 13:17
S26	8	((laser or lazer) near3 (engrav\$3) near composition)	US·PGPUB; USPAT; USOCR; DERWENT	OR	ON	2005/03/12 13:17
S27	81	((laser or lazer) near3 (engrav\$3) near (material or composition))	US·PGPUB; USPAT; USOCR; DERWENT	OR	ON	2005/03/12 13:19
S28	68849	modif\$7 near (polymer or material or resin or substrate)	US·PGPUB; USPAT; USOCR; DERWENT	OR	ON	2005/03/12 13:21
S29	44	S28 and S1	US·PGPUB; USPAT; USOCR; DERWENT	OR	ON	2005/03/12 13:21
S30	7	S29 and S15	US·PGPUB; USPAT; USOCR; DERWENT	OR	ON	2005/03/14 12:13
S31	1	2003-586979.NRAN.	DERWENT	OR	ON	2005/03/14 12:09
S32	164	(522/2).CCLS.	US·PGPUB; USPAT; USOCR; DERWENT	OR	OFF	2005/03/14 12:13
S33	13	(copper adj potassium adj iodide) or cuki3	US·PGPUB; USPAT; USOCR; DERWENT	OR	ON	2005/03/14 12:14
S34	50453	(copper adj iodide) or cui	US·PGPUB; USPAT; USOCR; DERWENT	OR	ON	2005/03/14 12:14

S35	123092	(potassium adj iodide) or Ki	US-PGPUB; USPAT; USOCR; DERWENT	OR	ON	2005/03/14 12:14
S36	44517	(sodium adj iodide) or NaI	US-PGPUB; USPAT; USOCR; DERWENT	OR	ON	2005/03/14 12:14
S37	228752	(aluminum adj iodide) or AlI	US-PGPUB; USPAT; USOCR; DERWENT	OR	ON	2005/03/14 12:14
S38	367889	(zinc adj sulfide) or Zns	US-PGPUB; USPAT; USOCR; DERWENT	OR	ON	2005/03/14 12:14
S39	919793	(barium adj sulfide) or Bas	US-PGPUB; USPAT; USOCR; DERWENT	OR	ON	2005/03/14 12:14
S40	14528	alkyl adj sulfonate	US-PGPUB; USPAT; USOCR; DERWENT	OR	ON	2005/03/14 12:14
S41	11644	thioester	US-PGPUB; USPAT; USOCR; DERWENT	OR	ON	2005/03/14 12:14
S42	1513577	(S33 S34 S35 S36 S37 S38 S39 S40 S41)	US-PGPUB; USPAT; USOCR; DERWENT	OR	ON	2005/03/14 12:14
S43	31	S32 and S42	US-PGPUB; USPAT; USOCR; DERWENT	OR	ON	2005/03/14 12:25
S44	1945	(laser or lazer) near3 (engrav\$3)	US-PGPUB; USPAT; USOCR; DERWENT	OR	ON	2005/03/14 12:15
S45	1	S43 and S44	US-PGPUB; USPAT; USOCR; DERWENT	OR	ON	2005/03/14 12:15
S46	19	(("6022905") or ("5298922") or ("5294774") or ("5215864") or ("4732410") or ("4816372") or ("4894110") or ("5005872") or ("5977514") or ("6179338")).PN.	US-PGPUB; USPAT; USOCR; DERWENT	OR	OFF	2005/03/14 12:26

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=> file reg  
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=> display history full 11-
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FILE 'REGISTRY'  
      E COPPER POTASSIUM IODIDE/CN  
L1      3 SEA (CU(L)K(L)I)/ELS (L) 3/ELC.SUB  
      E CUI3K  
      E CUPRIC IODIDE/CN  
L2      1 SEA "CUPRIC IODIDE"/CN  
      E CUPROUS IODIDE/CN  
L3      1 SEA "CUPROUS IODIDE"/CN OR "CUPROUS IODIDE (CUI)"/CN  
L4      74 SEA (CU(L)I)/ELS (L) 2/ELC.SUB  
      E POTASSIUM IODIDE/CN  
L5      1 SEA "POTASSIUM IODIDE"/CN  
L6      85 SEA (K(L)I)/ELS (L) 2/ELC.SUB  
      E SODIUM IODIDE/CN  
L7      1 SEA "SODIUM IODIDE"/CN  
L8      80 SEA (NA(L)I)/ELS (L) 2/ELC.SUB  
      E ALUMINUM IODIDE/CN  
L9      1 SEA "ALUMINUM IODIDE"/CN  
L10     29 SEA (AL(L)I)/ELS (L) 2/ELC.SUB  
      E ZINC SULFATE/CN  
L11     1 SEA "ZINC SULFATE"/CN  
      E BARIUM SULFIDE/CN  
L12     1 SEA "BARIUM SULFIDE"/CN  
      E METHYLSULFONATE/CN  
      E METHYL SULFONATE/CN  
L13     1 SEA METHYLSULFONIC ACID/CN  
      E ETHYLSULFONIC ACID/CN  
L14     1 SEA "ETHYLSULFONIC ACID"/CN  
      E PROPYLSULFONIC ACID/CN  
      E N-PROPYLSULFONIC ACID/CN  
      E N-PROPYL SULFONIC ACID/CN  
      E PROPYL SULFONIC ACID/CN  
      E PROPANESULFONIC ACID/CN  
L15     1 SEA "PROPANESULFONIC ACID"/CN  
      E ISOPROPYLSULFONIC ACID/CN  
      E ISOPROPYL SULFONIC ACID/CN  
      E ETHYLSULFONIC ACID, 1-METHYL-/CN
```

## FILE 'HCA'

L16 4 SEA ISOPROPYLSULFONIC# (A) ACID#  
L17 2 SEA ISOBUTYLSULFONIC# (A) ACID#

## FILE 'REGISTRY'

L18 1 SEA 16794-14-2  
E 1-ETHANESULFONIC ACID, 1-METHYL-/CN  
E C3H8O3S/MF  
L19 23 SEA C3H8O3S/MF  
E 2-PROPANESULFONIC ACID/CN  
L20 1 SEA "2-PROPANESULFONIC ACID"/CN  
E BUTANESULFONIC ACID/CN  
L21 2 SEA "BUTANESULFONIC ACID"/CN  
E 2-BUTANESULFONIC ACID/CN  
L22 1 SEA "2-BUTANESULFONIC ACID"/CN  
E 1-ETHANESULFONIC ACID, 1,1-DIMETHYL-/CN  
E TERT-BUTYLSULFONIC ACID/CN  
L23 1 SEA "TERT-BUTYLSULFONIC ACID"/CN  
L24 9 SEA L13 OR L14 OR L15 OR L18 OR L20 OR L21 OR L22 OR L23  
SEL L24 1-9 RN  
EDIT E1-E9 /BI /CRN  
L25 13220 SEA (14159-48-9/CRN OR 16794-12-0/CRN OR 16794-13-1/CRN  
L26 136 SEA L25 AND M/ELS AND 2/NC

## FILE 'HCA'

L27 23 SEA L1 OR CUKI3 OR KCUI3 OR CUK2I4 OR K2CUI4 OR CUKI2 OR  
KCUI2  
L28 8958 SEA L2 OR L3 OR L4 OR CUI OR CUI2  
L29 88308 SEA L5 OR L6 OR KI  
L30 32603 SEA L7 OR L8 OR NAI  
L31 947 SEA L9 OR L10 OR ALI3

## FILE 'REGISTRY'

E ZINC SULFIDE/CN  
L32 1 SEA "ZINC SULFIDE"/CN

## FILE 'HCA'

L33 32721 SEA L32 OR ZNS  
L34 3701 SEA L12 OR BAS  
L35 1747 SEA L26 OR METHYSULFONATE# OR ETHYLSULFONATE# OR  
PROPYLSULFONATE# OR ISOPROPYLSULFONATE# OR BUTYLSULFONATE  
# OR ISOBUTYLSULFONATE# OR (ME OR ET OR PR OR IPR OR BU  
OR IBU OR SBU OR TBU OR METHYL# OR ETHYL# OR PROPYL# OR  
ISOPROPYL# OR BUTYL# OR ISOBUTYL#) (A) SULFONATE#  
L36 7413 SEA THIOESTER# OR THIO#(A)ESTER#  
L37 718 SEA (L27 OR L28 OR L29 OR L30 OR L31) AND (L33 OR L34 OR  
L35 OR L36)

L38 454797 SEA LASER?  
 L39 20 SEA L38 AND L37  
 L40 239142 SEA (ETCH? OR PHOTOETCH? OR CHASE# OR CHASING# OR  
       ENCHAS? OR ENGRAV? OR PHOTOENGRAV? OR EMBOSSED? OR  
       PHOTOEMBOSS? OR INCISE# OR INCISING# OR IMPRINT? OR  
       IMPRESS? OR ENCAUSTIC?) /BI,AB  
 L41 3 SEA L40 AND L37  
 L42 941352 SEA (MIXT# OR MIXTURE? OR BLEND? OR ADMIX? OR COMMIX? OR  
       IMMIX? OR INTERMIX? OR COMPOSIT? OR COMPN# OR COMPSN# OR  
       FORMULAT? OR INTERSPER?) /TI  
 L43 26 SEA L42 AND L37  
 L44 QUE POLYMER## OR COPOLYMER## OR HOMOPOLYMER## OR  
       TERPOLYMER## OR RESIN? OR GUM#  
 L45 268717 SEA CROSSLINK? OR CROSS?(2A) LINK?  
 L46 QUE COUPL?  
 L47 QUE SILANE# OR ORGANOSILANE# OR ORGANOSILICON# OR  
       ?SILICONE? OR ?SILOXAN? OR (SILICON OR SI) (2A) (COMPOUND#  
       OR COMPD# OR CMPD# OR CPD# OR CONTAIN? OR CONTG#)

## FILE 'REGISTRY'

E AMINOPROPYLTRIETHOXYSILANE/CN  
 L48 1 SEA AMINOPROPYLTRIETHOXYSILANE/CN  
       E AMINOPROPYLTRIMETHOXYSILANE/CN  
 L49 1 SEA AMINOPROPYLTRIMETHOXYSILANE/CN

## FILE 'HCA'

L50 11450 SEA L48 OR L49  
 L51 0 SEA L37 AND L50  
 L52 10 SEA L37 AND L47  
 L53 35 SEA L37 AND L46

## FILE 'LCA'

L54 3136 SEA (ATTACH? OR FASTEN? OR AFFIX? OR CONNECT? OR JOIN?  
       OR LINK? OR COUPL?) /BI,AB  
 L55 3729 SEA (ADDITIVE? OR RETARDER? OR IMPROVER? OR STABILIZER?  
       OR STABILISER? OR INHIBITOR? OR MODIFIER? OR ACTIVATOR?  
       OR DEACTIVATOR? OR APPRECIATOR? OR BOOSTER? OR SUPPRESSOR  
       ? OR SCAVENGER? OR ENHANCER? OR ACCELERANT? OR ACCELERAT!  
       R?) /BI,AB

## FILE 'HCA'

L56 39573 SEA L54(2A) (L55 OR AGENT? OR PRIME# OR PRIMING#)  
 L57 2 SEA L37 AND L56  
 L58 4 SEA L37 AND L45  
 L59 47 SEA L37 AND L44  
 L60 3 SEA L43 AND L53  
 L61 7 SEA L43 AND L59  
 L62 5 SEA L53 AND L59

L63 47 SEA L37 AND GLASS?  
L64 108800 SEA GLASS?(2A) (FIBER? OR FIBR? OR THREAD? OR FILAMENT?  
OR STRAND? OR WHISKER? OR FILAFORM? OR RIBBON? OR BEAD?)  
OR FIBERGLASS?  
L65 2864 SEA CR39 OR CR(A) 39  
L66 174149 SEA POLYURETHAN## OR URETHAN##  
L67 5 SEA L37 AND L64  
L68 0 SEA L37 AND L65  
L69 0 SEA L37 AND L66  
L70 83033 SEA THERMAL?(2A) (COND# OR CONDUCT?) OR THERMOCOND?  
L71 803027 SEA BLOW? OR SPIN? OR SPUN? OR PHOTOMANIPULAT? OR  
PHOTO(2A)MANIPULAT? OR EXTRUS? OR EXTRUD?  
L72 1298 SEA GR!YSCAL? OR (GRAY OR GREY) (2A) SCAL?  
L73 1 SEA L37 AND L70  
L74 15 SEA L37 AND L71  
L75 0 SEA L37 AND L72  
L76 22 SEA L41 OR L57 OR L60 OR L61 OR L62 OR L67 OR L73  
L77 42 SEA (L39 OR L52 OR L74) NOT L76  
L78 71 SEA (L43 OR L53 OR L59) NOT (L76 OR L77)  
L79 2671517 SEA (RADIA? OR IRRAD? OR RAY# OR BEAM? OR EMANAT? OR  
EMIT? OR EMISS? OR PHOTOLY? OR BOMBARD? OR HOWITZER? OR  
ENERG?(A) SOURC?)/BI,AB  
L80 11 SEA L78 AND L79  
L81 60 SEA L78 NOT L80

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L76 ANSWER 1 OF 22 HCA COPYRIGHT 2005 ACS on STN  
142:117631 Polymer composition for encapsulation of  
electrode particles. Gozdz, Antoni S.; Loxley, Andrew L.; Pullen,  
Anthony E. (A123 Systems, Inc., USA). PCT Int. Appl. WO 2005000956  
A2 20050106, 47 pp. DESIGNATED STATES: W: AE, AG, AL, AM, AT, AU,  
AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK,  
DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN,  
IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG,  
MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC,  
SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC,  
VN, YU, ZA, ZM, ZW; RW: AT, BE, BF, BJ, CF, CG, CH, CI, CM, CY, DE,

DK, ES, FI, FR, GA, GB, GR, IE, IT, LU, MC, ML, MR, NE, NL, PT, SE, SN, TD, TG, TR. (English). CODEN: PIXXD2. APPLICATION: WO 2004-US20393 20040623. PRIORITY: US 2003-PV480535 20030623.

- AB Compns. and methods are provided for coating electroactive particles. Coating materials include a conductive component and a low refractive index component. Coatings are provided in which the conductive and low refractive index components are linked and/or do not form phases having length scales  $\approx 0.25 \mu\text{m}$ . Coatings are provided in which the components are contained in sequential layers.
- IT 7681-65-4, Copper iodide (CuI)  
(**polymer** compn. for encapsulation of electrode particles)
- RN 7681-65-4 HCA
- CN Copper iodide (CuI) (8CI, 9CI) (CA INDEX NAME)

Cu-I

- IC ICM C08L
- CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)  
Section cross-reference(s): 35, 42, 76
- ST encapsulation electrode particle low refractive index conductive **polymer**; electropolymer radical polymer poly thiophene acrylic fluoroalkyl conductive **polymer**; electrochem cell encapsulated electrode oxide polymd polythiophene acrylic graft
- IT **Polymers**, uses  
(block, encapsulating **polymer**; **polymer** compn.  
for encapsulation of electrode particles)
- IT Electric current  
(collector, coated; **polymer** compn. for encapsulation of electrode particles)
- IT Bond  
(covalent, between coating components; **polymer** compn.  
for encapsulation of electrode particles)
- IT Phase separation  
(domain size  $\approx 0.25 \mu\text{m}$ ; **polymer** compn. for encapsulation of electrode particles)
- IT Electric apparatus  
**Polymerization**  
(electrochem.; **polymer** compn. for encapsulation of electrode particles)
- IT Polyacetylenes, uses  
Polyanilines  
Polyphenyls  
(encapsulating **polymer**; **polymer** compn. for encapsulation of electrode particles)
- IT Electrodes

- (encapsulation of particulate materials for; **polymer** compn. for encapsulation of electrode particles)
- IT Fluoropolymers, uses  
(fluoroalkyl and fluoroaryl groups; **polymer** compn. for encapsulation of electrode particles)
- IT Ethers, preparation  
(fluoroalkyl, ethers with hydroxythiophenes; **polymer** compn. for encapsulation of electrode particles)
- IT Polymers, uses  
(graft, encapsulating **polymer**; **polymer** compn. for encapsulation of electrode particles)
- IT Bond  
(ionic, between coating components; **polymer** compn. for encapsulation of electrode particles)
- IT ~~Films~~  
(multilayer; **polymer** compn. for encapsulation of electrode particles)
- IT Refractive index  
(of coating **polymer**; **polymer** compn. for encapsulation of electrode particles)
- IT Electric conductivity  
(of **polymers** and encapsulated oxides; **polymer** compn. for encapsulation of electrode particles)
- IT Polymerization  
(oxidative coupling; **polymer** compn. for encapsulation of electrode particles)
- IT Anodes
- Cathodes
- Coating materials
- Conducting **polymers**
- Electrolytes
- Encapsulation
- Etherification
- Fluorination
- Oxidizing agents
- Solvents  
(**polymer** compn. for encapsulation of electrode particles)
- IT Acrylic **polymers**, uses  
(**polymer** compn. for encapsulation of electrode particles)
- IT Conducting **polymers**  
(polypyrroles, encapsulating **polymer**, alkyl, ether, thioether, ester, thioester, amine, amide, and benzyl derivs.; **polymer** compn. for encapsulation of electrode particles)
- IT Conducting **polymers**  
(polythiophenes, encapsulating **polymers**, alkyl, ether,

- thioether, alkylenedioxy-, ester, thioester, amine, amide, and benzyl derivs.; **polymer** compn. for encapsulation of electrode particles)
- IT Force  
(repulsive, of **polymers** to MCMBs; **polymer** compn. for encapsulation of electrode particles)
- IT Coating process  
(spray; **polymer** compn. for encapsulation of electrode particles)
- IT Glass substrates  
(substrate for electrode for electropolyrn.; **polymer** compn. for encapsulation of electrode particles)
- IT Polymerization  
(vapor-deposition; **polymer** compn. for encapsulation of electrode particles)
- IT 627528-57-8P  
(EDOT-F monomer; **polymer** compn. for encapsulation of electrode particles)
- IT 7440-44-0, Carbon, uses  
(MCMB; **polymer** compn. for encapsulation of electrode particles)
- IT 820958-17-6P  
(PrODOT-F monomer; **polymer** compn. for encapsulation of electrode particles)
- IT 52627-24-4, Lithium cobalt oxide 162684-16-4, Lithium manganese nickel oxide  
(electrode material, encapsulation of; **polymer** compn. for encapsulation of electrode particles)
- IT 820958-24-5P  
(oxide encapsulant film; **polymer** compn. for encapsulation of electrode particles)
- IT 7646-69-7, Sodium hydride 7681-65-4, Copper iodide (CuI) 7705-08-0, Ferric chloride, uses 7727-54-0, Ammonium persulfate 10421-48-4, Ferric nitrate 13537-24-1, Ferric perchlorate  
(**polymer** compn. for encapsulation of electrode particles)
- IT 312619-41-3  
(**polymer** compn. for encapsulation of electrode particles)
- IT 7440-47-3, Chromium, uses 7440-57-5, Gold, uses  
(**polymer** compn. for encapsulation of electrode particles)
- IT 64-17-5, Ethanol, uses 67-56-1, Methanol, uses 67-64-1, Acetone, uses 67-66-3, Chloroform, uses 75-05-8, Acetonitrile, uses 75-09-2, Methylene chloride, uses 141-78-6, Ethyl acetate, uses 7732-18-5, Water, uses  
(**polymer** compn. for encapsulation of electrode

particles)

IT 28825-23-2, Poly(hexafluoroisopropylmethacrylate) 104934-51-2,  
 Poly(3-octylthiophene)  
 (polymer compn. for encapsulation of electrode  
 particles)

IT 142214-55-9P 153634-17-4P 627528-58-9P 820958-20-1P  
 (polymer compn. for encapsulation of electrode  
 particles)

IT 820958-29-0P  
 (polymer compn. for encapsulation of electrode  
 particles)

IT 155090-83-8, Baytron P  
 (polymer compn. for encapsulation of electrode  
 particles)

IT 155090-83-8DP, Baytron P, fluorinated  
 (polymer compn. for encapsulation of electrode  
 particles)

IT 307-30-2 872-31-1, 3-Bromothiophene 920-46-7, Methacryloyl  
 chloride 7782-41-4, Fluorine, reactions 13781-67-4,  
 3-Thiopheneethanol 820958-26-7  
 (polymer compn. for encapsulation of electrode  
 particles)

IT 142214-54-8P  
 (polymer compn. for encapsulation of electrode  
 particles)

IT 153634-15-2P  
 (polymer compn. for encapsulation of electrode  
 particles)

IT 9002-84-0, Polytetrafluoroethylene 9003-53-6, Polystyrene  
 (polymer compn. for encapsulation of electrode  
 particles)

L76 ANSWER 2 OF 22 HCA COPYRIGHT 2005 ACS on STN

141:249007 Calculated spin-orbit splitting of all diamondlike and zinc-blende semiconductors: Effects of p1/2 local orbitals and chemical trends. Carrier, Pierre; Wei, Su-Huai (National Renewable Energy Laboratory, Golden, CO, 80401, USA). Physical Review B: Condensed Matter and Materials Physics, 70(3), 035212/1-035212/9 (English) 2004. CODEN: PRBMDO. ISSN: 0163-1829. Publisher: American Physical Society.

AB We have calcd. the spin-orbit (SO) splitting .DELTA.SO = .epsilon.(.GAMMA.8v)-.epsilon.(.GAMMA.7v) for all diamondlike group IV and zinc-blende group III-V, II-VI, and I-VII semiconductors using the full potential linearized APW method within the local d. approxn. The SO coupling is included using the second-variation procedure, including the p1/2 local orbitals. The calcd. SO splittings are in very good agreement with available exptl. data. The corrections due to the inclusion of the p1/2 local

orbital are negligible for lighter atoms, but can be as large as .apprx.250 meV for 6p anions. We find that (i) the SO splittings increase monotonically when anion at. no. increases; (ii) the SO splittings increase with the cation at. no. when the compd. is more covalent such as in most III-V compds.; (iii) the SO splittings decrease with the cation at. no. when the compd. is more ionic, such as in II-VI and the III-nitride compds.; (iv) the common-anion rule, which states that the variation of .DELTA.SO is small for common-anion systems, is usually obeyed, esp. for ionic systems, but can break down if the compds. contain second-row elements such as BSB; (v) for IB-VII compds., the .DELTA.SO is small and in many cases neg. and it does not follow the rules discussed above. These trends are explained in terms of at. SO splitting, vol. deformation-induced charge renormalization, and cation-anion p-d couplings.

- IT 1314-98-3, Zinc sulfide (ZnS), properties  
 7681-65-4, Copper iodide (CuI)  
 (spin-orbit splitting of all diamondlike and zinc-blende semiconductors, effects of p1/2 local orbitals and chem. trends studied by FP-LAPW calcns.)
- RN 1314-98-3 HCA  
 CN Zinc sulfide (ZnS) (9CI) (CA INDEX NAME)

S—Zn

- RN 7681-65-4 HCA  
 CN Copper iodide (CuI) (8CI, 9CI) (CA INDEX NAME)

Cu—I

- CC 65-3 (General Physical Chemistry)  
 Section cross-reference(s): 76
- IT Atomic orbital  
 Electron density  
 Semiconductor materials  
 Spin-orbit coupling  
 Spin-orbit splitting  
 (spin-orbit splitting of all diamondlike and zinc-blende semiconductors, effects of p1/2 local orbitals and chem. trends studied by FP-LAPW calcns.)
- IT 409-21-2, Silicon carbide (SiC), properties 1303-00-0, Gallium arsenide (GaAs), properties 1303-11-3, Indium arsenide (InAs), properties 1304-56-9, Beryllium oxide (BeO), properties 1306-19-0, Cadmium oxide (CdO), properties 1306-23-6, Cadmium sulfide (CdS), properties 1306-24-7, Cadmium selenide (CdSe), properties 1306-25-8, Cadmium telluride (CdTe), properties

1309-48-4, Magnesium oxide (MgO), properties 1312-41-0  
 1313-04-8, Magnesium selenide (MgSe) 1314-13-2, Zinc oxide (ZnO),  
 properties 1314-98-3, Zinc sulfide (ZnS),  
 properties 1315-09-9, Zinc selenide (ZnSe) 1315-11-3, Zinc  
 telluride (ZnTe) 1344-48-5, Mercury sulfide (HgS) 7429-90-5,  
 Aluminum, properties 7439-95-4, Magnesium, properties 7439-97-6,  
 Mercury, properties 7440-21-3, Silicon, properties 7440-22-4,  
 Silver, properties 7440-31-5, Tin, properties 7440-36-0,  
 Antimony, properties 7440-38-2, Arsenic, properties 7440-41-7,  
 Beryllium, properties 7440-42-8, Boron, properties 7440-43-9,  
 Cadmium, properties 7440-44-0, Carbon, properties 7440-50-8,  
 Copper, properties 7440-55-3, Gallium, properties 7440-56-4,  
 Germanium, properties 7440-57-5, Gold, properties 7440-66-6,  
 Zinc, properties 7440-69-9, Bismuth, properties 7440-74-6,  
 Indium, properties 7681-65-4, Copper iodide (CuI)  
 ) 7704-34-9, Sulfur, properties 7723-14-0, Phosphorus,  
 properties 7758-89-6, Copper chloride (CuCl) 7782-49-2,  
 Selenium, properties 7783-90-6, Silver chloride (AgCl), properties  
 7783-96-2, Silver iodide (AgI) 7785-23-1, Silver bromide (AgBr)  
 7787-70-4, Copper bromide (CuBr) 10043-11-5, Boron nitride (BN),  
 properties 10097-32-2, Atomic bromine, properties 10294-27-6,  
 Gold bromide (AuBr) 10294-29-8, Gold chloride (AuCl) 10294-31-2,  
 Gold iodide (AuI) 12003-08-6, AlBi 12005-69-5, Boron arsenide (BAs)  
 12007-06-6, Antimony boride (SbB) 12010-43-4  
 12010-46-7, BiIn 12032-36-9, Magnesium sulfide (MgS) 12032-44-9,  
 Magnesium telluride (MgTe) 12063-98-8, Gallium phosphide (GaP),  
 properties 12064-03-8 12068-90-5, Mercury telluride (HgTe)  
 12232-25-6, Beryllium selenide (BeSe) 12232-27-8, Beryllium  
 telluride (BeTe) 13494-80-9, Tellurium, properties 13598-22-6,  
 Beryllium sulfide (BeS) 14362-44-8, Atomic iodine, properties  
 17778-80-2, Atomic oxygen, properties 17778-88-0, Atomic nitrogen,  
 properties 20205-91-8, Boron phosphide (BP) 20601-83-6, Mercury  
 selenide (HgSe) 20859-73-8, Aluminum phosphide (AlP) 21908-53-2,  
 Mercury oxide (HgO) 22398-80-7, Indium phosphide (InP), properties  
 22537-15-1, Atomic chlorine, properties 22831-42-1, Aluminum  
 arsenide (AlAs) 24304-00-5, Aluminum nitride (AlN) 25152-52-7  
 25617-97-4, Gallium nitride (GaN) 25617-98-5, Indium nitride (InN)  
 (spin-orbit splitting of all diamondlike and zinc-blende  
 semiconductors, effects of p1/2 local orbitals and chem. trends  
 studied by FP-LAPW calcns.)

L76 ANSWER 3 OF 22 HCA COPYRIGHT 2005 ACS on STN

141:3774 Biosensor and method comprising enzymes immobilized on  
 semiconductors. Willner, Itamar; Katz, Eugenii; Pardo, Yissar Vered  
 (Yissum Research Development Company of the Hebrew University of  
 Jerusalem, Israel). PCT Int. Appl. WO 2004046374 A1 20040603, 28  
 pp. DESIGNATED STATES: W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG,  
 BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG,

ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW; RW: AT, BE, BF, BJ, CF, CG, CH, CI, CM, CY, DE, DK, ES, FI, FR, GA, GB, GR, IE, IT, LU, MC, ML, MR, NE, NL, PT, SE, SN, TD, TG, TR.  
(English). CODEN: PIXXD2. APPLICATION: WO 2003-IL795 20031002.

PRIORITY: IL 2002-153012 20021121.

AB The present invention provides a method and a device that utilizes functionalized semiconductor element for detecting presence and/or concn. of an agent in an assayed sample. The device of the present invention comprises: (i) a body having a surface comprising or having as seed. thereto semiconducting material that can be excited such that in the presence of an electron donor, said semiconducting material can generate an elec. current within the body; and (ii) an enzyme attached to said semiconducting material which in the presence of a substrate said enzyme catalyzes a reaction that yields said electron donors. CdS nanoparticles (diam. 3 nm) were capped with a protecting monolayer of cysteamine and mercaptoethansulfonic acid. The capped CdS nanoparticles were covalently linked to an Au-electrode functionalized with an N-hydroxysuccinimide active ester cysteic acid. Acetylcholine esterase was then covalently linked to the CdS nanoparticles using glutaric dialdehyde as bridging unit. The CdS nanoparticle-AChE hybrid system was photoelectrochem. active in the presence of acetylthiocholine as substrate.

IT 1314-98-3, Zinc Sulfide, uses 7681-65-4, Copper iodide (CuI)

(semiconducting; biosensor and method comprising enzymes immobilized on semiconductors excited by enzyme-generated electron donor)

RN 1314-98-3 HCA

CN Zinc sulfide (ZnS) (9CI) (CA INDEX NAME)

S—Zn

RN 7681-65-4 HCA

CN Copper iodide (CuI) (8CI, 9CI) (CA INDEX NAME)

Cu—I

IC ICM C12Q001-00

ICS G01N027-00

CC 9-1 (Biochemical Methods)

Section cross-reference(s): 4, 7

IT Linking agents

(cofactor attached to semiconductor through; biosensor and method comprising enzymes immobilized on semiconductors excited by enzyme-generated electron donor)

IT 1303-00-0, Gallium arsenide (GaAs), uses 1303-11-3, Indium arsenide (InAs), uses 1306-23-6, Cadmium sulfide (CdS), uses 1306-24-7, Cadmium selenide (CdSe), uses 1306-25-8, Cadmium telluride (CdTe), uses 1312-41-0 **1314-98-3**, Zinc Sulfide, uses 1315-09-9, Zinc selenide (ZnSe) 1315-11-3, Zinc telluride (ZnTe) 1344-48-5, Mercury sulfide 7440-21-3, Silicon, uses 7440-56-4, Germanium, uses **7681-65-4**, Copper iodide (CuI) 7758-89-6, Copper chloride (CuCl) 7783-90-6, Silver chloride, uses 7783-96-2, Silver iodide (AgI) 7785-23-1, Silver bromide (AgBr) 7787-70-4, Copper bromide (CuBr) 11138-42-4, Mercury selenide 12063-98-8, Gallium phosphide (GaP), uses 12064-03-8 12068-90-5, Mercury telluride 20859-73-8, Aluminum phosphide (AlP) 22398-80-7, Indium phosphide (InP), uses 22831-42-1, Aluminum arsenide (AlAs) 25152-52-7 57456-17-4, Indium arsenide phosphide 210471-34-4, Gallium arsenide phosphide 685111-20-0  
 (semiconducting; biosensor and method comprising enzymes immobilized on semiconductors excited by enzyme-generated electron donor)

L76 ANSWER 4 OF 22 HCA COPYRIGHT 2005 ACS on STN

140:384226 Procedure for the production linear organic oligomers for use in semiconductor films and devices. Kirchmeyer, Stephan; Ponomarenko, Sergei (H.C. Starck GmbH, Germany). Ger. Offen. DE 10248876 A1 20040506, 10 pp. (German). CODEN: GWXXBX.

APPLICATION: DE 2002-10248876 20021018.

AB The invention concerns a procedure for the prodn. of compds. of the general formula R1-[-Ar-]2n-R1, where n is a whole no. from 2-5; R1 stands for H or a C1-C20 alkyl chain optionally interrupted by one or more O atoms, S atoms, silylenes, phosphonyl, or phosphoryl groups; and Ar stands for optionally substituted 1,4-phenylene, 2,7-fluorene, or 2,5-thiophene, whereby each Ar can be the same or different. The invention further describes semiconducting layers made from the compds. and their use in semiconductor device technol.

IT **13767-71-0**, Copper (II) iodide **54253-62-2**,

Methanesulfonic acid, copper(2+) salt

(coupling agent; procedure for prodn. linear org. oligomers for use in semiconductor films and devices)

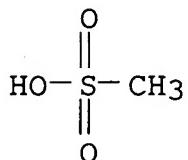
RN 13767-71-0 HCA

CN Copper iodide (CuI<sub>2</sub>) (6CI, 7CI, 8CI, 9CI) (CA INDEX NAME)

I-Cu-I

RN 54253-62-2 HCA

CN Methanesulfonic acid, copper(2+) salt (9CI) (CA INDEX NAME)



● 1/2 Cu(II)

- IC ICM C07D409-14  
 ICS C07D333-08  
 CC 76-2 (Electric Phenomena)  
 Section cross-reference(s): 27, 38, 73  
 IT Conducting polymers  
 (polythiophenes; procedure for prodn. linear org. oligomers for  
 use in semiconductor films and devices)  
 IT 142-71-2, Copper (II) acetate 1184-54-9, Methanol, Copper(2+) salt  
 2850-65-9, Ethanol, copper(2+) salt 7144-37-8, Benzenesulfonic  
 acid, 4-methyl-, copper(2+) salt 7447-39-4, Copper (II) chloride,  
 reactions 7789-45-9, Copper (II) bromide 13395-16-9, Copper (II)  
 acetylacetone 13479-54-4, Copper (II) glycinate  
 13767-71-0, Copper (II) iodide 17263-57-9, Copper (II)  
 citrate 34946-82-2, Copper (II) trifluoromethanesulfonate  
 54253-62-2, Methanesulfonic acid, copper(2+) salt  
 (coupling agent; procedure for prodn. linear  
 org. oligomers for use in semiconductor films and devices)

L76 ANSWER 5 OF 22 HCA COPYRIGHT 2005 ACS on STN

140:373461 Evaluation of breast cancer states and outcomes using gene expression profiles. West, Mike; Nevins, Joseph R.; Huang, Andrew (Synpac, Inc., USA; Duke University). PCT Int. Appl. WO 2004037996 A2 20040506, 799 pp. DESIGNATED STATES: W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW; RW: AT, BE, BF, BJ, CF, CG, CH, CI, CM, CY, DE, DK, ES, FI, FR, GA, GB, GR, IE, IT, LU, MC, ML, MR, NE, NL, PT, SE, SN, TD, TG, TR. (English). CODEN: PIXXD2. APPLICATION: WO 2003-US33656 20031024. PRIORITY: US 2002-PV420729 20021024; US 2002-PV421102 20021025; US 2002-PV421062 20021025; US 2002-PV424701 20021108; US 2002-PV424718 20021108; US 2002-PV424715 20021108; US 2002-PV425256 20021112; US 2002-291878 20021112; US 2002-291886 20021112; WO 2002-US38222

20021112; WO 2002-US38216 20021112; US 2003-PV448462 20030221; US 2003-PV448461 20030221; US 2003-PV457877 20030327; US 2003-PV458373 20030331.

**AB** The present invention relates generally to a method for evaluating and/or predicting breast cancer states and outcomes by measuring gene and metagene expression levels and integrating such data with clin. risk factors. Genes and metagenes whose expressions are correlated with a particular breast cancer risk factor or phenotype are provided using binary prediction tree modeling. The invention provides 175 genes assocd. with metagene predictors of lymph node metastasis, 216 genes assocd. with metagene predictors of breast cancer recurrence, and 496 metagenes related to breast cancer study. Methods of using the subject genes and metagenes in diagnosis and treatment methods, as well as drug screening methods, etc are also provided. In addn., reagents, media and kits that find use in practicing the subject methods are also provided.

**IC** ICM C12N

**CC** 14-1 (Mammalian Pathological Biochemistry)

Section cross-reference(s): 1, 3, 9

**IT** G protein-coupled receptors

Gene, animal

(GPR15; evaluation of breast cancer states and outcomes using gene expression profiles)

**IT** G protein-coupled receptors

Gene, animal

(GPR35; evaluation of breast cancer states and outcomes using gene expression profiles)

**IT** G protein-coupled receptors

Gene, animal

(RE2; evaluation of breast cancer states and outcomes using gene expression profiles)

**IT** Immunoglobulin receptors

(polymeric Ig; evaluation of breast cancer states and outcomes using gene expression profiles)

**IT** 187821-70-1 187824-32-4 187860-94-2, DNA (human acyl-CoA

thioester hydrolase) 188045-72-9 188089-61-4, DNA (human clone 23652 cDNA) 188089-62-5, DNA (human clone 23865 cDNA)

188089-63-6, DNA (human clone 23665 cDNA) 188218-22-6

188218-71-5 188221-65-0 188223-98-5 188226-04-2 188226-28-0

188275-28-7 188324-99-4 188329-74-0 188379-50-2 188379-53-5

188421-02-5 188421-25-2 188421-35-4 188963-18-0 188963-28-2

189023-55-0 189123-94-2 189327-93-3 189406-47-1 189419-14-5

189473-07-2 189520-90-9 189783-52-6 189804-06-6, GenBank

AB0164 189804-34-0, DNA (human gene MYBPC3) 189804-76-0

189834-17-1 189840-30-0 189841-26-7 189868-36-8 189920-96-5

189922-29-0 189922-93-8 189923-58-8 190044-76-9, DNA (human gene GPR31 plus flanks) 190045-04-6 190046-58-3 190147-16-1

190149-05-4 190166-53-1 190181-26-1 190429-68-6 190494-99-6

190495-01-3 190551-97-4 190552-67-1 190560-58-8 190641-39-5  
 190690-43-8 190738-47-7 190740-39-7 190741-70-9 190817-04-0  
 190817-63-1 190817-68-6, GenBank AF0717 190894-28-1  
 190920-39-9, DNA (human gene FLII) 190921-05-2, DNA (human cell  
 line WI-38 cDNA) 190921-07-4 190992-20-2 190994-43-5  
 190998-00-6 191004-47-4 191047-86-6 191117-49-4 191117-94-9  
 191243-08-0, DNA (human gene hMLH1 cDNA) 191268-46-9 191429-82-0  
 191434-23-8 191452-46-7 191452-52-5 191915-68-1 192143-27-4  
 192143-29-6 192143-37-6 192143-40-1 192143-68-3 192143-73-0  
 192143-77-4 192143-81-0 192143-87-6 192143-99-0 192144-05-1  
 192144-10-8 192144-11-9 192144-91-5 192267-30-4 192528-59-9  
 192830-56-1 192841-28-4, DNA (human clone 26578 cDNA)  
 192853-99-9 192966-46-4 192982-21-1 193028-91-0 193038-32-3  
 193052-63-0 193166-12-0 193234-11-6 193234-20-7 193263-88-6  
 193310-28-0, DNA (human Wip1 cDNA) 193398-38-8 193398-62-8, DNA  
 (human clone RP1-79C4) 193580-08-4 193665-34-8 193737-05-2  
 194004-07-4 194004-74-5 194004-80-3 194129-21-0, GenBank  
 U80764 194132-14-4 194133-39-6 194261-11-5 194383-44-3, DNA  
 (human clone RP1-196E23) 194513-49-0 194517-97-0, DNA (human  
 P2Y6 receptor pseudogene) 194527-93-0 194529-54-9 194531-07-2  
 194559-29-0 194568-15-5 194571-00-1 194573-02-9 194575-57-0  
 194617-16-8, GenBank U66064 194637-83-7 194639-08-2  
 194676-67-0 194706-21-3 194706-22-4 194706-59-7 194706-61-1  
 194749-12-7 194752-80-2 194817-96-4 194826-43-2 194835-78-4  
 194899-65-5 194917-47-0 194957-42-1, DNA (human gene clarp)  
 195012-52-3 195018-87-2 195021-31-9 195036-64-7 195037-45-7  
 195398-74-4, DNA (human clone lambda unknown cDNA) 195432-74-7  
 195462-66-9 195545-89-2 195573-23-0 195580-05-3 195581-47-6,  
 DNA (human Matrillin-3 cDNA) 195589-67-4 195651-38-8, DNA (human  
 clone TUA8 cDNA) 195690-00-7 195768-35-5 195770-16-2  
 195777-38-9 195792-20-2 195929-69-2, GenBank AB004922  
 196007-11-1, DNA (human clone HPC-12 gene PDE4C cDNA) 196017-58-0  
 196021-10-0, GenBank AF0838 196024-88-1, DNA (human gene DDT exon  
 3 plus flanks) 196025-07-7 196056-60-7 196180-80-0  
 196295-93-9 196384-03-9, DNA (human clone RP3-376D21 )  
 196384-39-1 196384-44-8 196384-84-6 196385-09-8 196529-84-7  
 196531-83-6 196536-60-4 196771-86-5 196890-04-7 197348-40-6  
 197626-10-1 197678-16-3 197678-17-4 197679-27-9 197685-85-1  
 197685-86-2 197736-34-8 197738-79-7 197828-46-9 197830-16-3  
 198055-43-5 198056-20-1 198122-59-7, DNA (human gene YKT6 cDNA)  
 198242-71-6 198591-20-7 198841-64-4 198841-69-9 198853-87-1  
 198868-06-3 198917-95-2 199024-64-1 199068-64-9 199150-09-9  
 199150-16-8 199236-30-1, DNA (human gene CAGF9) 199236-86-7, DNA  
 (human gene CAGH1 cDNA) 199237-91-7 199238-05-6, DNA (human  
 Dim1p homolog cDNA) 199238-28-3 199306-95-1 199320-51-9,  
 GenBank AF027974 199325-33-2 199376-80-2 199409-72-8  
 199411-49-9, DNA (human KG-1a cell lymphopain cDNA) 199490-75-0  
 199496-62-3 199509-81-4 199510-34-4 199521-66-9 199632-30-9

199642-33-6 199648-00-5 199655-15-7 199655-18-0 199783-01-2  
199811-09-1, DNA (human gene AFX1 exon 1 plus flanks) 199901-35-4  
199981-69-6 200023-71-8 200046-48-6, DNA (human gene ECH1)  
200048-12-0

(nucleotide sequence; evaluation of breast cancer states and outcomes using gene expression profiles)

IT 391545-59-8 391545-60-1 391545-62-3 391545-64-5, DNA (human  
5T4 oncofetal antigen) 391545-65-6 391545-67-8, DNA (human cell  
line KG-1 cDNA) 391545-68-9, DNA (human cell line KG-1 cDNA)  
391545-93-0 391545-97-4, DNA (human gene Cctg cDNA) 391546-10-4  
391546-11-5, DNA (human gene LBR) 391546-12-6 391546-18-2  
391546-20-6, DNA (human cell line HL60 cDNA) 391546-26-2  
391546-29-5, DNA (human caltractin cDNA) 391546-36-4, DNA (human  
gene RBP2 cDNA) 391546-56-8 391546-58-0 391546-64-8, DNA  
(human histidase cDNA) 391546-76-2 391546-78-4 391546-82-0  
391546-86-4 391546-87-5, DNA (human Na<sup>+</sup> channel protein cDNA)  
391546-89-7, DNA (human cell line KG-1 gene KIAA0042) 391546-90-0,  
DNA (human cell line KG-1 cDNA) 391546-98-8 391547-09-4, DNA  
(human gene garp cDNA) 391547-24-3 391547-30-1, GenBank X77744  
391547-32-3, DNA (human gene TEGT) 391547-47-0 391547-50-5  
391547-60-7 391547-61-8, DNA (human gene D10S102 cDNA)  
391547-69-6 391547-70-9, DNA (human BST-2 cDNA) 391547-76-5  
391547-80-1, DNA (human clone Hsn cDNA) 391547-94-7 391547-97-0,  
DNA (human FUSE binding protein cDNA) 391548-09-7 391548-22-4  
391548-26-8 391548-27-9 391548-31-5, DNA (human gene hmlh1  
protein cDNA) 391548-37-1 391548-38-2 391548-45-1  
391548-53-1 391548-62-2 391548-81-5 391548-87-1, DNA (human  
gene ODF2 (allele 2)) 391548-89-3, DNA (human gene CAT cDNA)  
391548-90-6 391549-04-5, DNA (human DNA topoisomerase I cDNA)  
391549-06-7 391549-11-4, DNA (human clone Hbeta-[1 and 2] cDNA)  
391549-15-8, DNA (human cell line KG-1 cDNA) 391549-16-9, DNA  
(human cell line KG-1 cDNA) 391549-25-0 391549-38-5, DNA (human)  
391549-40-9 391549-41-0, DNA (human phospholipase c delta 1 cDNA)  
391549-45-4, DNA (human gene eIF-4II cDNA) 391549-48-7  
391549-55-6, GenBank D29675 391549-58-9, DNA (human gene UQCRFS1)  
391549-62-5, DNA (human cell line KG-1 cDNA) 391549-63-6, DNA  
(human cell line KG-1 cDNA) 391549-71-6 391549-74-9  
391549-78-3, DNA (human cell line Raji DAD-1 cDNA) 391549-81-8,  
DNA (human gene NNMT cDNA) 391549-83-0, DNA (human ORF cDNA)  
391549-90-9 391550-25-7, DNA (human cell line KG-1 cDNA)  
391550-26-8 391550-27-9 391550-29-1, DNA (human cell line KG-1  
cDNA) 391550-40-6 391550-44-0, DNA (human gene mig-2 plus  
3'-flank) 391550-45-1, DNA (human cell line WI-38 clone mig-1 )  
391550-47-3 391550-50-8 391550-52-0, DNA (human cell line KG-1  
cDNA) 391550-53-1 391550-54-2, DNA (human cell line KG-1 cDNA)  
391550-55-3 391550-57-5, DNA (human cell line KG-1 cDNA)  
391550-59-7, DNA (human GP36b glycoprotein cDNA) 391550-60-0, DNA  
(human clone mNTK1.2 cDNA) 391550-61-1 391550-69-9, DNA (human)

ferritin heavy chain cDNA) 391550-70-2 391550-71-3, DNA (human clone 315F12 ) 391550-72-4 391550-73-5 391550-75-7  
391550-77-9 391550-97-3 391551-03-4, DNA (human Ki nuclear autoantigen cDNA) 391551-04-5, DNA (human clone H16-2 plakophilin cDNA) 391551-06-7 391551-07-8, DNA (human clone clone 270-4 cDNA) 391551-10-3 391551-14-7, DNA (human clone pPAP12 cDNA) 391551-19-2, DNA (human gene PTP1E cDNA)  
391551-21-6, DNA (human gene edg-2 cDNA) 391551-33-0, DNA (human isolate patient I-9 cDNA) 391551-36-3 391551-43-2, DNA (human cell line Hela S3 cDNA) 391551-47-6 391551-54-5 391551-56-7  
391551-57-8 391551-62-5 391551-80-7 391551-85-2 391551-88-5  
391551-99-8 391552-04-8 391552-21-9, DNA (human gene Eps8 cDNA)  
391552-24-2, DNA (human gene SYT) 391552-43-5 391552-46-8  
391552-47-9 391553-02-9 391553-08-5 391553-09-6 391553-27-8  
391553-30-3, DNA (human fibrinogen-like protein cDNA) 391553-34-7  
391553-41-6 391553-45-0, DNA (human ribosomal protein S5 cDNA)  
391553-47-2 391553-48-3, DNA (human ribosomal protein L5 cDNA)  
391553-52-9 391553-60-9 391553-62-1 391553-67-6, DNA (human gene HEK8 cDNA) 391553-69-8 391553-79-0 391553-88-1, DNA (human myosin-IC) 391553-90-5, DNA (human HLA-DMB cDNA)  
391553-99-4 391554-11-3 391554-14-6, DNA (human clone MN1 cDNA)  
391554-16-8, DNA (human gene H4(D10S170) cDNA) 391554-19-1  
391554-20-4, DNA (human gene BNIP2) 391554-25-9 391554-26-0  
391554-27-1, DNA (human cell line KG-1 cDNA) 391554-32-8, DNA (human cell line KG-1 cDNA) 391554-33-9, DNA (human cell line KG-1 cDNA) 391554-34-0 391554-35-1, DNA (human cell line KG-1 cDNA)  
391554-37-3, DNA (human cell line KG-1 cDNA) 391554-44-2, DNA (human cell line COLO 205 cDNA) 391554-67-9, DNA (human clone p60-1 cDNA) 391554-68-0 391554-72-6, DNA (human cyclin F cDNA plus flanks) 391554-86-2 391554-87-3 391554-91-9 391555-09-2  
391555-11-6 391555-16-1 391555-24-1 391555-27-4, DNA (human clone pKOT170 cDNA) 391555-28-5, DNA (human clone pKOT161 cDNA)  
391555-29-6 391555-37-6 391555-45-6 391555-47-8 391555-51-4, DNA (human cell line KG-1 cDNA) 391555-54-7, DNA (human cell line KG-1 cDNA) 391555-55-8, DNA (human clone pcDNA.HS.2 cDNA)  
391555-62-7 391555-65-0 391555-67-2, DNA (human gene CENP-A cDNA) 391555-89-8, DNA (human gene PECAM-1) 391555-90-1, DNA (human clone E5.1 cDNA) 391556-08-4, DNA (human gene BAT1 cDNA)  
391556-09-5 391556-11-9, DNA (human clone C-2K cDNA) 391556-36-8  
391556-59-5 391556-65-3, DNA (human clone pSTU65 cDNA)  
391556-66-4, DNA (human clone Lutheran ) 391556-67-5 391556-68-6  
391556-69-7 391556-70-0, DNA (human cell line KG-1 cDNA)  
391556-71-1 391556-78-8, DNA (human gene TROP-2) 391556-80-2  
391556-81-3 391556-87-9 391556-92-6, DNA (human gene ANK-3 cDNA)  
391556-93-7 391557-06-5, DNA (human initiation factor 2 cDNA)  
391557-12-3, DNA (human 5'-nucleotidase) 391557-14-5, DNA (human gene P43 cDNA) 391557-22-5 391557-48-5, DNA (human SURF-1 cDNA)  
391557-52-1 391557-62-3, DNA (human gene E2F-4 cDNA)

391557-67-8, DNA (human gene EPLG3 cDNA) 391557-72-5, DNA (human gene B5 cDNA) 391557-73-6 391557-87-2 391557-98-5  
 391558-12-6, GenBank U18062 391558-60-4, DNA (human cell line BL41/B95-8 cDNA) 391560-46-6, DNA (human clone HHH5 gene SHH cDNA)  
 391560-48-8 391560-53-5 391560-67-1 391561-51-6 391562-13-3  
 391562-75-7 391563-53-4 391563-77-2 391563-78-3 391563-98-7,  
 DNA (human cell line T47D cDNA) 391564-47-9, DNA (human paxillin cDNA) 391564-58-2 391566-17-9 391566-19-1 391566-22-6  
 391566-25-9 391566-44-2, DNA (human gene pgH3 cDNA) 391567-27-4  
 391567-29-6, DNA (human clone p5 cDNA) 391567-30-9 391567-33-2,  
 DNA (human gene nCL1 cDNA) 391567-37-6, DNA (human clone CLA20 cDNA).

(nucleotide sequence; evaluation of breast cancer states and outcomes using gene expression profiles)

L76 ANSWER 6 OF 22 HCA COPYRIGHT 2005 ACS on STN

139:325768 metal salts and compounds as reactive tracers for tracking of particles, especially proppants, in petroleum recovery operations.  
 Nguyen, Philip D.; Weaver, Jimmie D.; Barton, Johnny A. (Halliburton Energy Services, Inc., USA). U.S. Pat. Appl. Publ. US 2003196799 A1 20031023, 8 pp., Cont.-in-part of U.S. Ser. No. 125,171. (English).  
 CODEN: USXXCO. APPLICATION: US 2002-298825 20021118. PRIORITY: US 2002-125171 20020418.

AB Tracking of flow and flowback of particles, esp. proppants injected into petroleum wells and reservoirs, esp. during recovery and enhanced recovery operations, uses a tracking material or tracer that is incorporated into the proppants (e.g., by injection as part of the crosslinkable resin that is used to enhance the mech. strength of the proppants). Different tracking materials or tracers can be injected into different zones of the reservoir and analyzed sep. to det. the different flow patterns at different well depths. The tracking material is selected from metals, metal salts of org. acids, phosphorescent pigments, fluorescent pigments, photoluminescent pigments, oil-sol. dyes, and oil-dispersible dyes and pigments. Preferably, the tracking material is a metal, selected from Group I through Group VIII metals, rare earth metals, metal oxides, metal phosphates, and metal org. acid salts, provided that the added metal is not a component of the proppant and is compatible with the injected fluids. The recovered proppants can then be analyzed for metal content (e.g., by inductively coupled plasma spectrometry).

IT 1314-98-3, Zinc sulfide, reactions

(phosphors, tracers; metal salts and compds. as reactive tracers for tracking of particles, esp. proppants, in petroleum recovery operations)

RN 1314-98-3 HCA

CN Zinc sulfide (ZnS) (9CI) (CA INDEX NAME)

S==Zn

IT 7681-11-0, Potassium iodide, reactions 7681-82-5,  
Sodium iodide, reactions  
(tracers; metal salts and compds. as reactive tracers for  
tracking of particles, esp. proppants, in petroleum recovery  
operations)  
RN 7681-11-0 HCA  
CN Potassium iodide (KI) (8CI, 9CI) (CA INDEX NAME)

I-K

RN 7681-82-5 HCA  
CN Sodium iodide (NaI) (9CI) (CA INDEX NAME)

I-Na

IC ICM E21B047-00  
ICS E21B043-267  
NCL 166250120; 166250100; 166252600; 166313000; 166280000  
CC 51-2 (Fossil Fuels, Derivatives, and Related Products)  
IT Mass spectrometry  
(inductively coupled plasma, metal anal. by; metal  
salts and compds. as reactive tracers for tracking of particles,  
esp. proppants, in petroleum recovery operations)  
IT Plasma atomic emission spectrometry  
(inductively coupled, metal anal. by; metal salts and  
compds. as reactive tracers for tracking of particles, esp.  
proppants, in petroleum recovery operations)  
IT 1314-96-1, Strontium sulfide 1314-98-3, Zinc sulfide,  
reactions 7790-75-2, Calcium tungstate 13597-65-4, Zinc silicate  
13814-85-2, Zinc silicate 20548-54-3, Calcium sulfide  
(phosphors, tracers; metal salts and compds. as reactive tracers  
for tracking of particles, esp. proppants, in petroleum recovery  
operations)  
IT 60-33-3D, Linoleic acid, metal salts 62-74-8, Sodium  
monofluoroacetate 65-85-0D, Benzoic acid, metal salts 69-72-7D,  
Salicylic acid, metal salts 110-44-1D, Sorbic acid, metal salts  
149-91-7D, Gallic acid, metal salts 463-40-1D, Linolenic acid,  
metal salts 463-79-6D, Carbonic acid, metal salts 513-77-9,  
Barium carbonate 513-78-0, Cadmium carbonate 534-16-7, Silver  
carbonate 537-01-9, Cerium carbonate 546-93-0, Magnesium  
carbonate 554-13-2, Lithium carbonate 587-26-8, Lanthanum  
carbonate 598-63-0, Lead carbonate 621-82-9D, Cinnamic acid,  
metal salts 1184-64-1, Copper carbonate 1304-28-5, Barium oxide,

reactions 1304-56-9, Beryllium oxide, reactions 1306-19-0,  
Cadmium oxide, reactions 1307-96-6, Cobalt oxide, reactions  
1308-87-8, Dysprosium oxide 1308-96-9, Europium oxide 1309-48-4,  
Magnesium oxide, reactions 1312-81-8, Lanthanum oxide 1313-27-5,  
Molybdenum oxide (MoO<sub>3</sub>), reactions 1313-97-9, Neodymium oxide  
1313-99-1, Nickel oxide, reactions 1314-13-2, Zinc oxide,  
reactions 1314-35-8, Tungsten oxide, reactions 1314-37-0,  
Ytterbium oxide 1314-62-1, Vanadium oxide (V2O<sub>5</sub>), reactions  
1317-38-0, Copper oxide, reactions 1332-37-2, Iron oxide,  
reactions 1335-25-7, Lead oxide 1344-70-3, Copper oxide  
2923-16-2, Potassium trifluoroacetate 2923-18-4, Sodium  
trifluoroacetate 3333-67-3, Nickel carbonate 3486-35-9, Zinc  
carbonate 3874-27-9 5066-34-2, Dysprosium carbonate 5895-46-5,  
Neodymium carbonate 5895-48-7, Europium carbonate 5895-49-8,  
Gadolinium carbonate 5895-51-2, Holmium carbonate 5895-52-3,  
Ytterbium carbonate 5895-53-4, Lutetium carbonate 6026-63-7,  
Thulium carbonate 6067-34-1, Terbium carbonate 6067-35-2, Erbium  
carbonate 7429-90-5, Aluminum, reactions 7429-91-6, Dysprosium,  
reactions 7439-89-6, Iron, reactions 7439-91-0, Lanthanum,  
reactions 7439-92-1, Lead, reactions 7439-93-2, Lithium,  
reactions 7439-94-3, Lutetium, reactions 7439-95-4, Magnesium,  
reactions 7439-96-5, Manganese, reactions 7439-98-7, Molybdenum,  
reactions 7440-00-8, Neodymium, reactions 7440-02-0, Nickel,  
reactions 7440-10-0, Praseodymium, reactions 7440-12-2,  
Promethium, reactions 7440-15-5, Rhenium, reactions 7440-19-9,  
Samarium, reactions 7440-22-4, Silver, reactions 7440-26-8,  
Technetium, reactions 7440-27-9, Terbium, reactions 7440-30-4,  
Thulium, reactions 7440-32-6, Titanium, reactions 7440-33-7,  
Tungsten, reactions 7440-39-3, Barium, reactions 7440-41-7,  
Beryllium, reactions 7440-43-9, Cadmium, reactions 7440-45-1,  
Cerium, reactions 7440-47-3, Chromium, reactions 7440-48-4,  
Cobalt, reactions 7440-50-8, Copper, reactions 7440-52-0,  
Erbium, reactions 7440-53-1, Europium, reactions 7440-54-2,  
Gadolinium, reactions 7440-57-5, Gold, reactions 7440-60-0,  
Holmium, reactions 7440-62-2, Vanadium, reactions 7440-64-4,  
Ytterbium, reactions 7440-66-6, Zinc, reactions 7446-14-2, Lead  
sulfate 7487-88-9, Magnesium sulfate, reactions 7492-68-4,  
Copper carbonate 7542-09-8, Cobalt carbonate 7631-99-4, Sodium  
nitrate, reactions 7632-00-0, Sodium nitrite 7646-85-7, Zinc  
chloride, reactions 7647-15-6, Sodium bromide, reactions  
7647-17-8, Cesium chloride, reactions 7664-38-2D, Phosphoric acid,  
metal salts 7664-93-9D, Sulfuric acid, metal salts  
**7681-11-0**, Potassium iodide, reactions **7681-82-5**,  
Sodium iodide, reactions 7699-45-8, Zinc bromide 7723-14-0,  
Phosphorus, reactions 7727-43-7, Barium sulfate 7733-02-0, Zinc  
sulfate 7757-87-1 7758-98-7, Copper sulfate, reactions  
7779-90-0, Zinc phosphate 7784-09-0, Silver phosphate 7784-30-7,  
Aluminum phosphate 7785-87-7, Manganese sulfate 7786-81-4,

Nickel sulfate 7787-46-4, Beryllium bromide 7787-47-5, Beryllium chloride 7787-49-7, Beryllium fluoride 7787-69-1, Cesium bromide 7789-42-6, Cadmium bromide 7790-80-9, Cadmium iodide 10025-73-7, Chromium chloride (CrCl<sub>3</sub>) 10031-25-1, Chromium bromide 10043-01-3, Aluminum sulfate 10099-60-2, Sulfuric acid, lanthanum(3+) salt (3:2) 10101-53-8, Chromium sulfate 10101-95-8, Neodymium sulfate 10103-48-7, Copper phosphate 10108-64-2, Cadmium chloride 10124-36-4, Cadmium sulfate 10124-43-3, Cobalt sulfate 10124-49-9, Iron sulfate 10124-54-6, Manganese phosphate 10139-47-6, Zinc iodide 10277-44-8, Praseodymium sulfate 10290-71-8, Iron carbonate 10294-26-5, Silver sulfate 10325-94-7, Cadmium nitrate 10377-48-7, Lithium sulfate 10377-52-3, Lithium phosphate 10381-36-9, Nickel phosphate 10402-24-1, Iron phosphate 10553-31-8, Barium bromide 11099-11-9, Vanadium oxide 11104-61-3, Cobalt oxide 11118-57-3, Chromium oxide 11129-18-3, Cerium oxide 11129-60-5, Manganese oxide 12032-20-1, Lutetium oxide 12036-25-8, Promethium oxide 12036-32-7, Praseodymium oxide 12036-41-8, Terbium oxide 12036-44-1, Thulium oxide 12055-62-8, Holmium oxide 12057-24-8, Lithium oxide, reactions 12060-58-1, Samarium oxide 12061-16-4, Erbium oxide 12064-62-9, Gadolinium oxide 12624-27-0, Rhenium oxide 12750-98-0, Chromium iodide 13106-47-3, Beryllium carbonate 13296-76-9D, Eleostearic acid, metal salts 13463-67-7, Titanium oxide, reactions 13465-57-1, Samarium phosphate 13469-97-1, Sulfuric acid, ytterbium(3+) salt (3:2) 13477-17-3, Cadmium phosphate 13478-49-4, Erbium sulfate 13537-10-5, Europium phosphate 13537-15-0, Europium sulfate 13598-26-0, Beryllium phosphate 13628-51-8, Gadolinium phosphate 13628-54-1, Sulfuric acid, gadolinium(3+) salt (3:2) 13692-99-4, Terbium sulfate 13693-11-3, Titanium sulfate 13718-50-8, Barium iodide 13759-80-3, Ytterbium phosphate 13765-94-1 13765-96-3 13778-59-1, Lanthanum phosphate 13847-18-2, Barium phosphate 13863-48-4, Terbium phosphate 13863-49-5, Dysprosium phosphate 14014-68-7, Promethium phosphate 14298-31-8, Praseodymium phosphate 14298-32-9, Neodymium phosphate 14298-36-3, Lutetium phosphate 14298-38-5, Erbium phosphate 14298-39-6, Holmium phosphate 14373-91-2, Dysprosium sulfate 14455-29-9, Aluminum carbonate 14475-17-3, Praseodymium carbonate 14489-25-9, Chromium sulfate 14542-94-0, Vanadium phosphate 14986-89-1, Lutetium sulfate 15622-40-9, Holmium sulfate 15883-44-0, Thulium phosphate 16040-38-3, Lead phosphate 16453-74-0, Chromium phosphate 16785-81-2, Vanadium sulfate 17017-57-1 17347-75-0, Tungsten phosphate 17375-37-0, Manganese carbonate 17409-91-5, Cobalt phosphate 18130-44-4, Titanium sulfate 20667-12-3, Silver oxide 20731-62-8, Thulium sulfate 22995-94-4, Sulfuric acid, promethium(3+) salt (3:2) 23745-86-0 24670-27-7, Cerium sulfate 25013-42-7, Molybdenum phosphate 25880-71-1; Samarium carbonate 29689-14-3 38414-00-5, Samarium sulfate 39403-39-9, Gold oxide

51016-80-9, Molybdenum sulfate 51891-70-4, Vanadium carbonate  
 52953-75-0, Technetium oxide 62585-96-0 63835-92-7 76214-28-3,  
 Titanium carbonate 77490-43-8, Tungsten sulfate 108149-53-7,  
 Sulfuric acid, technetium salt 108149-54-8, Rhenium sulfate  
 127647-51-2, Gold sulfate 143797-15-3, Carbonic acid, tungsten  
 salt 146509-31-1, Molybdenum carbonate 163406-29-9, Phosphoric  
 acid, gold salt 478412-59-8, Carbonic acid, gold salt  
 610791-71-4 610803-40-2 610803-41-3 610803-42-4  
 (tracers; metal salts and compds. as reactive tracers for  
 tracking of particles, esp. proppants, in petroleum recovery  
 operations)

L76 ANSWER 7 OF 22 HCA COPYRIGHT 2005 ACS on STN

138:56867 Thermoplastic composition based on a blend  
 of poly(arylene ether)s and polyamides. Bastiaens, Jozef H. P.;  
 Carminati, Alessio (General Electric Company, USA). U.S. US 6500895  
 B1 20021231, 17 pp., Cont.-in-part of U. S. 6,353,050. (English).  
 CODEN: USXXAM. APPLICATION: US 2000-711122 20001109. PRIORITY: US  
 2000-687581 20001013.

AB A thermoplastic compn. comprises (a) 5-95% of a poly(arylene ether),  
 (b) 5-95% of a polyamide, (c) 0.01-10% of a compatibilizer, (d)  
 0.1-20% of a polyester ionomer which is the polycondensation product  
 of (1) an arom. dicarboxylic acid or its ester-forming deriv., (2) a  
 diol compd. or its ester-forming deriv., and (3) an ester-forming  
 compd. contg. an ionic sulfonate group, and (e) an amt. of a  
 stabilizer effective to enhance the morphol. stability of the  
 thermoplastic compn., ~~the stabilizer comprising at least one~~ phenolic species in combination with at least one ~~thioester~~  
~~species, at least one organo-phosphite species, or at least one~~  
~~thioester species in combination with at least one~~  
 organo-phosphite species. The thermoplastic compn. exhibits reduced  
 moisture absorption, improved paint adhesion and improved stability.  
 The use of the polyester ionomers effectively lowers amts. of  
 conductive fillers. The thermoplastic compn. is suitable for manuf.  
 of molded articles, such as molded automobile parts. Thus, a compn.  
 was produced by blending 2,6-xylenol homopolymer (PPO 803)  
 (38.8), Kraton G 1651E (7) and Kraton G 1701E (3.5) rubber, citric  
 acid compatibilizer (0.65), Irganox 1076 antioxidant (0.3), Crystar  
 Merge 3918 ionomer (4.88), nylon 66 (39.12), carbon fibers,  
 KI and CuI.

IC ICM C08K003-04

NCL 524538000; 524320000; 524321000; 524495000

CC 37-6 (Plastics Manufacture and Processing)

Section cross-reference(s): 39

ST polyoxyarylene polyamide thermoplastic polymer blend

IT Impact modifiers

Polymer blend compatibilizers

Stabilizing agents

(in thermoplastic compn. based on blend of poly(arylene ether) and polyamide)

IT Polyamides, properties

Polymer blends

Polyoxyphenylenes

(thermoplastic compn. based on blend of poly(arylene ether) and polyamide)

IT 25086-53-7, .epsilon.-Caprolactam-1,6-hexanediamine-terephthalic acid copolymer

(Nylon 6/6T; thermoplastic compn. based on blend of poly(arylene ether) and polyamide)

IT 25776-72-1, Adipic acid-1,6-diaminohexane-terephthalic acid copolymer

(Nylon 66/6T; thermoplastic compn. based on blend of poly(arylene ether) and polyamide)

IT 58227-88-6, 1,4-Butanediol-dimethyl terephthalate-dimethyl 5-sulfoisophthalate sodium salt copolymer

(ionomer; in thermoplastic compn. based on blend of poly(arylene ether) and polyamide)

IT 25608-79-1, Ethylene-propene-styrene copolymer

(rubber, impact modifier; in thermoplastic compn. based on blend of poly(arylene ether) and polyamide)

IT 24938-67-8, PPO 803 25134-01-4, 2,6-Xylenol homopolymer

32131-17-2, Nylon 66, properties

(thermoplastic compn. based on blend of poly(arylene ether) and polyamide)

IT 9008-66-6 9011-52-3, Hexamethylenediamine-sebacic acid

copolymer 24937-16-4, Nylon 12. 25038-54-4, Nylon 6, uses

25038-74-8 27136-65-8, Azelaic acid-hexamethylenediamine

copolymer 28757-63-3, Nylon 6,9 50327-22-5, Nylon 46

50327-77-0, Adipic acid-1,4-butanediamine copolymer

(thermoplastic compn. based on blend of poly(arylene ether) and polyamide)

L76 ANSWER 8 OF 22 HCA COPYRIGHT 2005 ACS on STN

137:353853 Compositions showing electromagnetic properties,

their thin films or fibers, and polyphenyleneethynylenes bearing dendritic side chains. Kawa, Manabu (Mitsubishi Chemical Corp., Japan). Jpn. Kokai Tokkyo Koho JP 2002322348 A2 20021108, 20 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 2001-128837 20010426.

AB The compns. contg. elec. conductive polymers with elec.

insulating dendritic side chains and ultrafine particles with no.-av. particle diam. 1-50 nm and their moldings wherein the polymers are oriented, such as thin films or fibers, are

claimed. Polyphenyleneethynylenes (PPhE) bearing dendritic side chains and terminated with SH are also claimed. Thus, polybenzyl ether dendron (PBED)-bonded diethynylbenzene ([G-3]2E2) was prep'd.

by etherifying 2.05 equiv 3,5-bis[3,5-bis(benzyloxy)benzyloxy]benzyl

bromide ([G-2]-Br) with 1.0 equiv 3,5-dihydroxybenzyl alc. in acetone in the presence of K<sub>2</sub>CO<sub>3</sub> and 18-crown-6-ether to give a dendron of generation 3 ([G-3]-OH), followed with brominating and subsequently reacting with 1,4-dihydroxy-2,5-diethynylbenzene. [G-3]2E2 was copolymerd. with p-IC<sub>6</sub>H<sub>4</sub>I in the presence of (PPh<sub>3</sub>)<sub>4</sub>Pd, CuI, and (i-Pr)<sub>2</sub>NH at equiv ratio 1.0:1.0, then treated with a small amt. of ethynylbenzene to give a product, PBED-branched PPhE, which was sol. in THF and had PPhE-derived luminescence (at around 454 nm) by 280-nm UV irradn. A THF-based mixt. of PBED-branched PPhE and CdS crystal particles was cast between 2 slide glasses and kept at 60-65.degree. under atm. pressure. One of the slide glasses were滑ed in the longitudinal direction to apply unidirectional shear stress on the soln. The appeared soln. face was immediately condensed by warm wind to give a thin film contg. the CdS ultrafine particles which had optical anisotropy and luminescence by UV irradn.

- IT 1314-98-3P, Zinc sulfide, preparation  
 (ZnS/CdS core-shell particle; polyphenyleneethynlenes bearing dendritic side chains, their blends with ultrafine particles, and their optically anisotropic, luminescent thin films or fibers)
- RN 1314-98-3 HCA
- CN Zinc sulfide (ZnS) (9CI) (CA INDEX NAME)

S—Zn

- IC ICM C08L065-00  
 ICS C08G061-02; C08J005-00; C08K003-02; H01B001-12
- CC 37-6 (Plastics Manufacture and Processing)  
 Section cross-reference(s): 38, 40, 72, 73
- IT Dendritic polymers  
 (polyacetylenes, polyphenylene-, graft; polyphenyleneethynlenes bearing dendritic side chains, their blends with ultrafine particles, and their optically anisotropic, luminescent thin films or fibers)
- IT Conducting polymers  
 Luminescent substances  
 Nanoparticles  
 (polyphenyleneethynlenes bearing dendritic side chains, their blends with ultrafine particles, and their optically anisotropic, luminescent thin films or fibers)
- IT 1314-98-3P, Zinc sulfide, preparation  
 (ZnS/CdS core-shell particle; polyphenyleneethynlenes bearing dendritic side chains, their blends with ultrafine particles, and their optically anisotropic, luminescent thin films or fibers)

L76 ANSWER 9 OF 22 HCA COPYRIGHT 2005 ACS on STN

128:328720 Stable matte formulation for imaging element.

Schell, Brian Andrew; Nair, Mridula (Eastman Kodak Company, USA).

Eur. Pat. Appl. EP 838725 A1 19980429, 11 pp. DESIGNATED STATES: R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO. (English). CODEN: EPXXDW. APPLICATION: EP 1997-203166 19971011. PRIORITY: US 1996-735722 19961023.

AB The present invention describes an aq. coating compn. useful in an imaging element which includes **polymeric** matte beads, an ionic surfactant and a dispersant selected from the group of **polymers** represented by the generic structures shown below AB, ABA and (AB)<sub>x</sub>Q(BA)<sub>z</sub> wherein A comprises up to 150 repeat units of ethylene oxide, B comprises 3 to 100 repeat units of propylene oxide or higher alkylene oxide or combinations thereof, Q represents a multivalent linking group, x represents 1 or 2 and z represents 1 or 2. The present invention describes an imaging element that includes a support, at least one image-forming layer, and an auxiliary layer of **polymeric** matte beads, an ionic antistatic agent, and a dispersant selected from the group of **polymers** represented by the generic structures shown below AB, ABA, and (AB)<sub>x</sub>Q(BA)<sub>z</sub> wherein A is up to 150 repeat units of ethylene oxide, B is 3 to 100 repeat units of propylene oxide or higher alkylene oxide or combinations thereof, Q represents a multivalent linking group, x represents 1 or 2 and z represents 1 or 2. The present invention also describes an aq. coating compn. useful in an imaging element.

IT 5391-97-9, 1-Butanesulfonic acid, potassium salt

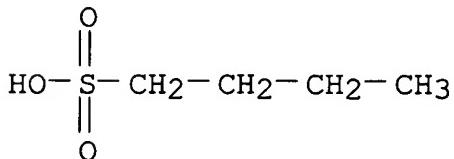
7681-11-0, Potassium iodide, uses 7681-82-5,

Sodium iodide, uses

(photog. films with antistatic matte coatings prep'd. from coating compns. contg.)

RN 5391-97-9 HCA

CN 1-Butanesulfonic acid, potassium salt (9CI) (CA INDEX NAME)



● K

RN 7681-11-0 HCA

CN Potassium iodide (KI) (8CI, 9CI) (CA INDEX NAME)

I-K

RN 7681-82-5 HCA  
 CN Sodium iodide (NaI) (9CI) (CA INDEX NAME)

I-Na

IC ICM G03C001-85  
 ICS B41M005-00; B41M005-40  
 CC 74-2 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)  
 ST photog film antistatic matte polymer coating; alkylene oxide polymer photog antistatic coating  
 IT Photographic films  
 (antistatic matte coating compns. contg. alkylene oxide polymers for)  
 IT 333-20-0, Potassium thiocyanate 540-72-7, Sodium thiocyanate 556-65-0, Lithium thiocyanate 2926-27-4, Potassium trifluoromethanesulfonate 5391-97-9, 1-Butanesulfonic acid, potassium salt 7447-41-8, Lithium chloride, uses 7647-14-5, Sodium chloride, uses 7681-11-0, Potassium iodide, uses 7681-82-5, Sodium iodide, uses 7790-69-4, Lithium nitrate 7791-03-9, Lithium perchlorate 9002-89-5, Poly(vinyl alcohol) 9003-70-7, Divinylbenzene-styrene copolymer 10377-51-2, Lithium iodide 13755-29-8, Sodium tetrafluoroborate 13826-88-5, Zinc tetrafluoroborate 14283-07-9, Lithium tetrafluoroborate 17084-13-8, Potassium hexafluorophosphate 55120-75-7, Calcium bis(trifluoromethanesulfonate) 55348-40-8, Triton X-200 106392-12-5, Pluronic F108 110617-70-4, Tetronic 908 128664-36-8D, APG 225, glycoside  
 (photog. films with antistatic matte coatings prep'd. from coating compns. contg.)

L76 ANSWER 10 OF 22 HCA COPYRIGHT 2005 ACS on STN  
 126:199416 Rapid Syntheses of Oligo(2,5-thiopheneethynylene)s with Thioester Termini: Potential Molecular Scale Wires with Alligator Clips. Pearson, Darren L.; Tour, James M. (Department of Chemistry and Biochemistry, University of South Carolina, Columbia, SC, 29208, USA). Journal of Organic Chemistry, 62(5), 1376-1387 (English) 1997. CODEN: JOCEAH. ISSN: 0022-3263. Publisher: American Chemical Society.

AB The syntheses of sol. oligo(3-ethyl-2,5-thiopheneethynylene)s via an iterative divergent/convergent approach starting from 3-ethyl-2-[(trimethylsilyl)ethynyl]thiophene are described. The monomer, dimer, tetramer, octamer, and 16-mer were synthesized. The

16-mer is 100 .ANG. long in its minimized extended zigzag conformation. At each stage in the iteration, the length of the framework doubles. Only three sets of reaction conditions are needed for the entire iterative synthetic sequence: an iodination, a protodesilylation, and a Pd/Cu-catalyzed cross-coupling. The oligomers were characterized spectroscopically and by mass spectrometry. The optical properties show that at the octamer stage, the optical absorbance max. is nearly satd. The size exclusion chromatog. values for the no. av. wts., relative to polystyrene, illustrate the tremendous differences in the hydrodynamic vol. of these rigid rod oligomers vs. the random coils of polystyrene. These differences become quite apparent at the octamer stage. Attachment of thiol end groups, protected as the thioacetyl moieties, was achieved. These serve as binding sites for adhesion to gold surfaces. In some cases, one end of the oligomeric chains was capped with a thiol group so that the surface attachments to gold could be studied. In other cases, thiol groups were affixed to both ends of the mol. chains so that future conduction studies could be done between proximal metallic probes. The rigid rod conjugated oligomers may act as mol. wires in mol. scale electronic devices, and they also serve as useful models for understanding analogous bulk polymers.

IT 7681-65-4, Cuprous iodide  
 (oligo(2,5-thiopheneethynylene)s with **thioester** termini  
 as potential mol. scale wires with alligator clips)

RN 7681-65-4 HCA

CN Copper iodide (CuI) (8CI, 9CI) (CA INDEX NAME)

Cu-I

CC 27-8 (Heterocyclic Compounds (One Hetero Atom))  
 Section cross-reference(s): 66, 76

IT Volume  
 (hydrodynamic; oligo(2,5-thiopheneethynylene)s with  
**thioester** termini as potential mol. scale wires with  
 alligator clips)

IT Electric conductors  
 (oligo(2,5-thiopheneethynylene)s with **thioester** termini  
 as potential mol. scale wires with alligator clips)

IT 7681-65-4, Cuprous iodide 13965-03-2,  
 Dichlorobis(triphenylphosphine)palladium  
 (oligo(2,5-thiopheneethynylene)s with **thioester** termini  
 as potential mol. scale wires with alligator clips)

IT 589-87-7, Benzene, 1-bromo-4-ido- 624-38-4, Benzene, 1,4-diido-  
 625-88-7, Thiophene, 2,5-diido- 872-31-1, 3-Bromothiophene  
 1795-01-3, 3-Ethylthiophene 40231-03-6 69746-43-6, Ethanethioic  
 acid, S-(4-iodophenyl) ester 154978-33-3 182872-90-8

(oligo(2,5-thiopheneethynylene)s with **thioester** termini  
as potential mol. scale wires with alligator clips)

IT 766-96-1P, Benzene, 1-bromo-4-ethynyl- 13781-67-4P,  
3-Thiopheneethanol 34722-01-5P, 3-Butylthiophene 135598-02-6P  
154978-34-4P 154978-35-5P 154978-36-6P 171005-41-7P  
171005-42-8P 171005-44-0P 173723-31-4P 182873-01-4P  
182873-03-6P 182873-06-9P 187791-42-0P 187791-43-1P  
187791-44-2P 187791-45-3P 187791-46-4P 187791-47-5P  
187791-49-7P 187791-50-0P 187791-52-2P 187791-53-3P  
187791-55-5P 187791-56-6P 187791-57-7P 187791-59-9P  
187791-61-3P 187791-62-4P

(oligo(2,5-thiopheneethynylene)s with **thioester** termini  
as potential mol. scale wires with alligator clips)

IT 170159-24-7P, Ethanethioic acid, S-(4-ethynylphenyl) ester  
173723-32-5P 187791-48-6P 187791-51-1P 187791-54-4P  
187791-58-8P 187791-60-2P 187791-63-5P

(oligo(2,5-thiopheneethynylene)s with **thioester** termini  
as potential mol. scale wires with alligator clips)

L76 ANSWER 11 OF 22 HCA COPYRIGHT 2005 ACS on STN

126:150264 Nonlinear optical material and optical switching device.  
Kaneko, Yoshiharu; Omi, Shigeaki (Hoya Corp, Japan). Jpn. Kokai  
Tokkyo Koho JP 08328059 A2 19961213 Heisei, 10 pp. (Japanese).  
CODEN: JKXXAF. APPLICATION: JP 1995-131982 19950530.

AB The material is obtained by dispersing fine particles with particle  
size 1-500 nm in a transparent matrix with thermal  
cond. .qtoreq.2 W/mK. The device comprises the material.

The material showed rapid response.

IT 7681-65-4, Copper iodide (CuI) ✓  
(fine particles; fine particle-dispersed nonlinear optical  
material and optical switching device)

RN 7681-65-4 HCA

CN Copper iodide (CuI) (8CI, 9CI) (CA INDEX NAME)

Cu-I

IT 1314-98-3, Zinc sulfide, uses ✓  
(matrix; fine particle-dispersed nonlinear optical material and  
optical switching device)

RN 1314-98-3 HCA

CN Zinc sulfide (ZnS) (9CI) (CA INDEX NAME)

S=Zn

IC ICM G02F001-35

CC 73-10 (Optical, Electron, and Mass Spectroscopy and Other Related

## Properties)

Section cross-reference(s): 56, 76

- IT 1314-87-0, Lead sulfide 1314-91-6, Lead telluride 7439-88-5, Iridium, uses 7439-89-6, Iron, uses 7439-92-1, Lead, uses 7439-96-5, Manganese, uses 7439-98-7, Molybdenum, uses 7440-02-0, Nickel, uses 7440-03-1, Niobium, uses 7440-04-2, Osmium, uses 7440-05-3, Palladium, uses 7440-06-4, Platinum, uses 7440-16-6, Rhodium, uses 7440-18-8, Ruthenium, uses 7440-21-3, Silicon, uses 7440-22-4, Silver, uses 7440-25-7, Tantalum, uses 7440-31-5, Tin, uses 7440-33-7, Tungsten, uses 7440-36-0, Antimony, uses 7440-48-4, Cobalt, uses 7440-50-8, Copper, uses 7440-56-4, Germanium, uses 7440-57-5, Gold, uses 7440-69-9, Bismuth, uses 7681-65-4, Copper iodide (CuI) 7758-89-6, Copper chloride (CuCl) 7787-70-4, Copper bromide (CuBr) 7789-40-4, Thallium bromide 7790-30-9, Thallium iodide 7791-12-0, Thallium chloride 11148-21-3 12069-00-0, Lead selenide 25152-52-7, Aluminum antimonide 37368-07-3, Selenium telluride 186550-44-7 186550-46-9, Copper thallium bromide chloride iodide ((Cu,Tl)(Br,Cl,I))  
(fine particles; fine particle-dispersed nonlinear optical material and optical switching device)
- IT 409-21-2, Silicon carbide, uses 1303-00-0, Gallium arsenide, uses 1306-23-6, Cadmium sulfide, uses 1306-24-7, Cadmium selenide, uses 1306-25-8, Cadmium telluride, uses 1309-48-4, Magnesium oxide, uses 1314-36-9, Yttrium oxide (Y2O3), uses 1314-98-3, Zinc sulfide, uses 1315-09-9, Zinc selenide 1315-11-3, Zinc telluride 1344-28-1, Aluminum oxide (Al2O3), uses 7631-86-9, Silica, uses 7782-40-3, Diamond, uses 10043-11-5, Boron nitride, uses 12005-21-9, Aluminum yttrium oxide (Al5Y3O12) 12005-22-0, Aluminum ytterbium oxide (Al5Yb3O12) 12024-41-8, Gallium yttrium oxide (Ga5Y3O12) 12024-42-9, Gallium ytterbium oxide (Ga5Yb3O12) 12031-63-9, Lithium niobate 12033-89-5, Silicon nitride, uses 12063-98-8, Gallium phosphide, uses 12068-51-8, Aluminum magnesium oxide (Al2MgO4) 13463-67-7, Titania, uses 13776-74-4, Magnesium silicon oxide (MgSiO3) 22398-80-7, Indium phosphide, uses 24304-00-5, Aluminum nitride 60383-47-3, Magnesium titanium oxide (MgTiO2)  
(matrix; fine particle-dispersed nonlinear optical material and optical switching device)

L76 ANSWER 12 OF 22 HCA COPYRIGHT 2005 ACS on STN

125:12418 Heat-resistant blends of polyamides, poly(phenylene ethers), and rubbers containing stabilizers at high concentration. Horio, Mitsuhiro; Nakabashi, Junichi (Asahi Chemical Ind., Japan; Asahi Kasei Chemical Corp.). Jpn. Kokai Tokkyo Koho JP 08048867 A2 19960220 Heisei, 10 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1994-184754 19940805.

AB The title compns., showing improved thermal aging resistance,

contain polyamide phase assocd. with their own stabilizers, poly(phenylene ethers) phase assocd. with their own stabilizers, rubber phase assocd. with their own stabilizers, and compds. substituted with carboxylic acid (anhydride), epoxy, amino, or OH, which are prep'd. by supplying the stabilizers from master batches. Thus, 32.5 parts poly(2,6-dimethyl-1,4-phenylene ether) (I), 12.5 parts Tuftec H 1271 (II; hydrogenated SBR), 0.3 part maleic anhydride, 45 parts nylon 6 (III), 5 parts III contg. CuI, and a premixed compn. of I 2.5, II 2.5, and pentaerythrityl tetrakis[3-[3,5-di(tert-butyl)-4-hydroxyphenyl]propionate] 0.5 part were blended, kneaded, pelletized, and injection-molded to give a test piece showing 86% retention of initial impact strength after 1000 h at 23.degree..

IT 1314-98-3, Zinc sulfide, uses 7681-11-0, Potassium iodide, uses 7681-65-4, Cuprous iodide (stabilizer; blends of polyamides, polyoxyphenylenes, and rubbers assocd. with stabilizers showing improved thermal aging resistance)  
RN 1314-98-3 HCA  
CN Zinc sulfide (ZnS) (9CI) (CA INDEX NAME)

## S—Zn

RN 7681-11-0 HCA  
CN Potassium iodide (KI) (8CI, 9CI) (CA INDEX NAME)

## I-K

RN 7681-65-4 HCA  
CN Copper iodide (CuI) (8CI, 9CI) (CA INDEX NAME)

## Cu—I

IC ICM C08L071-12  
ICS C08K005-00; C08L021-00; C08L077-00  
CC 37-6 (Plastics Manufacture and Processing)  
Section cross-reference(s): 39  
IT 108-31-6, Maleic anhydride, uses (resin blends contg.; blends of polyamides, polyoxyphenylenes, and rubbers assocd. with stabilizers showing improved thermal aging resistance)  
IT 102-71-6, Triethanolamine, uses 693-36-7, Distearyl 3,3'-thiodipropionate 991-84-4 1010-85-1, Stabinol CS 42  
1314-13-2, Zinc oxide, uses 1314-98-3, Zinc sulfide, uses 1502-47-2 2082-79-3, Octadecyl 3-[3,5-di(tert-butyl)-4-

hydroxyphenyl]propionate] 2760-98-7, Isophthalic dihydrazide 4128-94-3, Succinoguanamine 4180-12-5, Copper acetate 6683-19-8, Pentaerythrityl tetrakis[3-[3,5-di(tert-butyl)-4-hydroxyphenyl]propionate] 7681-11-0, Potassium iodide, uses 7681-65-4, Cuprous iodide 7758-89-6, Cuprous chloride 31570-04-4, Tris(2,4-di-tert-butylphenyl) phosphite 32687-78-8, Irganox MD 1024 35074-77-2 36411-52-6, Mark CDA 1 61167-58-6  
 (stabilizer; blends of polyamides, polyoxyphenylenes, and rubbers assoc'd. with stabilizers showing improved thermal aging resistance)

L76 ANSWER 13 OF 22 HCA COPYRIGHT 2005 ACS on STN

120:300236 Antistatic thermoplastic compositions with long service life. Fujikake, Masato; Yamamoto, Takushi; Kobayashi, Hiroshi; Nii, Shinji (Sumitomo Seika KK, Japan). Jpn. Kokai Tokkyo Koho JP 06025538 A2 19940201 Heisei, 6 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1992-182598 19920709.

AB The title compns. useful for moldings such as elec. and electronic parts comprise 100 parts thermoplastic resins, 2-40 parts crosslinked polyoxyalkylenes (A), and 0.3-10 parts organosulfonic acid salts or electrolytes. A blend of ABS resin 100, Aquacoke NU-30 (A) 2, Na octylsulfonate 2, and an antioxidant 0.3 part showed surface resistivity  $4.9 \times 10^{10}$  and  $1.6 \times 10^{11}$  .OMEGA. initially and after washing and drying, resp.

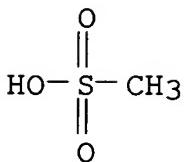
IT 7681-82-5, Sodium iodide, uses  
 (antistatic agents, for thermoplastic compns. for molding)

RN 7681-82-5 HCA

CN Sodium iodide (NaI) (9CI) (CA INDEX NAME)

I—Na

IT 2386-57-4, Sodium methanesulfonate  
 (antistatic agents, in thermoplastics contg. crosslinked polyoxyalkylenes for long service life)  
 RN 2386-57-4 HCA  
 CN Methanesulfonic acid, sodium salt (8CI, 9CI) (CA INDEX NAME)



## ● Na

IC ICM C08L101-00  
 ICS C08K005-42; C09K003-16  
 ICI C08L101-00, C08L071-02  
 CC 37-6 (Plastics Manufacture and Processing)  
 ST antistatic ABS sulfonate agent; electrolyte antistatic ABS  
 resin compn; crosslinking polyoxyalkylene antistatic  
 thermoplastic compn  
 IT 540-72-7, Sodium thiocyanate 7681-82-5, Sodium iodide,  
 uses  
 (antistatic agents, for thermoplastic compns. for molding)  
 IT 2386-57-4, Sodium methanesulfonate 5324-84-5, Sodium  
 octylsulfonate 13893-34-0, Sodium stearyl sulfonate 25155-30-0,  
 Sodium dodecylbenzenesulfonate  
 (antistatic agents, in thermoplastics contg. crosslinked  
 polyoxyalkylenes for long service life)  
 IT 9002-86-2, PVC 9003-56-9, ABS polymer  
 (antistatic compns., contg. crosslinked polyoxyalkylenes for long  
 service life)

L76 ANSWER 14 OF 22 HCA COPYRIGHT 2005 ACS on STN  
 112:57581 Discoloration- and light-resistant colored polyamide  
compositions. Nishio, Takesumi; Fujimoto, Takatoshi (Toyota Motor  
 Corp., Japan; Ube Industries, Ltd.). Jpn. Kokai Tokkyo Koho JP, 01156364-A2, 19890619 Heisei, 3 pp. (Japanese). CODEN: JKXXAF.  
 APPLICATION: JP 1987-316517 19871215.  
 AB Title compns. contain polyamides 100, inorg. colorants 0.01-1,  
ZnS 0.005-0.5, Cu halides 0.005-0.1 (as Cu), K halides  
 0.1-0.5, and triazines 0.01-0.1 part. Thus, Ube Nylon 1011GC6 [  
 glass fiber (30%)-contg. nylon 6, relative  
 viscosity 2.30] 100, 6N395SB (brown pigment-contg. nylon 6) 10,  
ZnS 0.02, CuI 0.05, KI 0.5, and melamine  
 0.01 part were melt kneaded and injection molded at 260.degree. into  
 3-mm test pieces, which showed degree of discoloration 0.9 in the  
 fading test (83.degree., no raining, 1000 h), compared with 2.5  
 without ZnS.  
 IT 1314-98-3, Zinc sulfide, uses and miscellaneous

7681-11-0, Potassium iodide, uses and miscellaneous  
 7681-65-4, Cuprous iodide  
 (light stabilizers, for colored polyamides)

RN 1314-98-3 HCA  
 CN Zinc sulfide (ZnS) (9CI) (CA INDEX NAME)

S—Zn

RN 7681-11-0 HCA  
 CN Potassium iodide (KI) (8CI, 9CI) (CA INDEX NAME)

I—K

RN 7681-65-4 HCA  
 CN Copper iodide (CuI) (8CI, 9CI) (CA INDEX NAME)

Cu—I

IC ICM C08L077-00  
 ICS C08K013-02  
 ICI C08K013-02, C08K003-30, C08K003-16, C08K005-34  
 CC 37-6 (Plastics Manufacture and Processing)  
 IT 108-78-1, 1,3,5-Triazine-2,4,6-triamine, uses and miscellaneous  
 1314-98-3, Zinc sulfide, uses and miscellaneous  
 7681-11-0, Potassium iodide, uses and miscellaneous  
 7681-65-4, Cuprous iodide  
 (light stabilizers, for colored polyamides)

L76 ANSWER 15 OF 22 HCA COPYRIGHT 2005 ACS on STN  
 109:23832 Light-colored reinforced thermoplastic molding  
 compositions. Plachetta, Christoph; Reimann, Horst;  
 Steinberger, Rolf; Theysohn, Rainer (BASF A.-G., Fed. Rep. Ger.).  
 Ger. Offen. DE 3626777 A1 19880211, 6 pp. (German). CODEN: GWXXBX.  
 APPLICATION: DE 1986-3626777 19860807.

AB The title compns., in which the effectiveness of heat stabilizers is unimpaired, contain thermoplastics 10-91.9, reinforcing fillers 7-60, TiO<sub>2</sub> 0.1-40, and rubbers 1-40%. Thus, a mixt. of nylon 6 (Fikentscher K-value 73, contg. 100 ppm CuI and 1500 ppm KI) with TiO<sub>2</sub> 1, glass fibers 30, and 33:66:1 Bu acrylate-C<sub>2</sub>H<sub>4</sub>-maleic anhydride copolymer (I) 10% gave injection moldings with color white and impact strength 65 kJ/cm<sup>2</sup>; vs. white and 1., resp., without I, and gray and 69, resp., with ZnS in place of TiO<sub>2</sub>.

IC ICM C08K003-00  
 ICS C08K007-04; C08K003-20; C08K007-10; C08K007-14; C08L077-00;

C08L067-00; C08J005-00

ICI C08L077-00, C08L067-00, C08L023-16, C08L023-08, C08L051-00;  
C08J003-20, C08K007-04, C08K003-20, C08K003-24, C08K005-13,  
C08K005-10, C08K005-05

CC 37-6 (Plastics Manufacture and Processing)  
Section cross-reference(s): 39

ST molding plastic reinforced white; blend plastic molding white;  
rubber plastic blend molding; titanium dioxide plastic molding;  
nylon 6 molding reinforced; **glass fiber** plastic  
molding; acrylate **copolymer** blend molding; ethylene  
**copolymer** blend molding

IT **Glass fibers**, uses and miscellaneous  
(plastic-rubber blends reinforced by, for white moldings)

IT 51109-15-0, Butyl acrylate-ethylene-glycidyl methacrylate  
**copolymer** 64652-60-4, Butyl acrylate-ethylene-maleic  
anhydride **copolymer**  
(rubber, blends with plastics and titanium dioxide, for white  
reinforced moldings)

L76 ANSWER 16 OF 22 HCA COPYRIGHT 2005 ACS on STN  
104:234004 Calculation of scattering and dispersion-related parameters  
for ultralow-loss optical fibers. Nassau, K.; Lines, M. E. (AT and  
T Bell Lab., Murray Hill, NJ, 07974, USA). Optical Engineering  
(Bellingham, WA, United States), 25(4), 602-7 (English) 1986.  
CODEN: OPEGAR. ISSN: 0091-3286.

AB The search for improved optical **fiber glasses**  
with the potential for losses lower than those of fused Si-based  
compn. could be expedited if the relevant optical parameters could  
be calcd. This is important for the magnitude and wavelength of the  
min. in the loss curve, since these values were exptl. established  
only for fused Si. Details are given of a way of estg. such data.  
A summary is also given of a way of calcg. the wavelength at which  
the material dispersion parameter is zero and of calcg. the material  
dispersion slope at that wavelength. A listing is given of calcd.  
and some exptl. values of the material dispersion slope. The  
availability of these parameters should expedite the search for new  
and improved glasses.

IT 1314-98-3, properties 7681-11-0, properties  
7681-82-5, properties  
(scattering and dispersion-related parameters for ultralow-loss  
optical fibers contg., calcn. of)

RN 1314-98-3 HCA

CN Zinc sulfide (ZnS) (9CI) (CA INDEX NAME)

S==Zn

RN 7681-11-0 HCA

CN Potassium iodide (KI) (8CI, 9CI) (CA INDEX NAME)

I-K

RN 7681-82-5 HCA

CN Sodium iodide (NaI) (9CI) (CA INDEX NAME)

I-Na

CC 73-12 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)

Section cross-reference(s): 57

IT 1303-00-0, properties 1303-11-3, properties 1303-33-9  
 1303-36-2 1303-86-2, properties 1304-56-9 1304-76-3,  
 properties 1309-48-4, properties 1309-64-4, properties  
 1310-53-8, properties 1314-12-1 1314-23-4, properties  
**1314-98-3**, properties 1315-09-9 1317-36-8, properties  
 1327-53-3 1344-28-1, properties 7447-40-7, properties  
 7447-41-8, properties 7550-35-8 7631-86-9, properties  
 7646-85-7, properties 7647-14-5, properties **7681-11-0**,  
 properties 7681-49-4, properties **7681-82-5**, properties  
 7758-02-3, properties 7758-95-4 7783-48-4 7783-64-4  
 7783-64-4D, solid soln. with barium fluoride 7783-90-6, properties  
 7787-32-8 7787-32-8D, solid soln. with zirconium fluoride  
 7787-49-7 7787-69-1 7789-17-5 7789-23-3 7789-24-4,  
 properties 7789-27-7 7789-40-4 7789-40-4D, solid soln. with  
 thallium iodide 7789-75-5, properties 7790-30-9 7790-30-9D,  
 solid soln. with thallium bromide 7791-11-9, properties  
 7791-12-0 10031-22-8 10101-63-0 10377-51-2 12025-32-0  
 13400-13-0 13463-67-7, properties 13709-38-1 20859-73-8  
 25152-52-7 68481-45-8

(scattering and dispersion-related parameters for ultralow-loss optical fibers contg., calcn. of)

L76 ANSWER 17 OF 22 HCA COPYRIGHT 2005 ACS on STN

97:191856 Ferroelectricity and coherent phonon generation in piezoelectric composition-modulated structures. Wong, H. K.; Wong, G. K.; Ketterson, J. B. (Mater. Res. Cent., Northwestern Univ., Evanston, IL, 60201, USA). Journal of Applied Physics, 53(10), 6834-8 (English) 1982. CODEN: JAPIAU. ISSN: 0021-8979.

AB An approach is suggested for making new metastable ferroelec. materials and piezoelec. transducers which should be efficient in generating coherent phonons with wavelengths approaching interat. distances. This involves the fabrication of compn.-modulated (layered) structures consisting of piezoelec. components. The coherency strain accompanying short wavelength compn. modulation

leads to ferroelectricity; the periodic modulation of the piezoelec. parameters leads to an anomalously strong **coupling** to far-IR light when the compn. wavelength is an odd half-multiple of the wavelength of a phonon at the driving frequency. Such transducers can open a new dimension in the study of phonons in dielecs. at low temps.

- IT 1314-98-3D, solid solns. with gallium arsenide  
 7681-65-4D, solid solns. with copper bromide  
     (ferroelectricity and coherent phonon generation in piezoelec.  
     compn.-modulated structures of)  
 RN 1314-98-3 HCA  
 CN Zinc sulfide (ZnS) (9CI) (CA INDEX NAME)

S—Zn

- RN 7681-65-4 HCA  
 CN Copper iodide (CuI) (8CI, 9CI) (CA INDEX NAME)

Cu—I

- CC 76-8 (Electric Phenomena)  
 IT Infrared radiation  
     (far-, **coupling** of, in piezoelec. compn.-modulated  
     structures)  
 IT 1303-00-0D, solid solns. with zinc chalcogenides 1314-98-3D  
     , solid solns. with gallium arsenide 1315-09-9D, solid solns. with  
     gallium arsenide 7681-65-4D, solid solns. with copper  
     bromide 7758-89-6D, solid solns. with copper bromide 7787-70-4D,  
     solid solns. with copper halides  
     (ferroelectricity and coherent phonon generation in piezoelec.  
     compn.-modulated structures of)

- L76 ANSWER 18 OF 22 HCA COPYRIGHT 2005 ACS on STN  
 71:131025 Fast highly sensitive films containing metallic compounds  
     sensitive to photon, electron, or ion irradiation. Kaspaul, Alfred  
     F.; Kaspaul, Erika E. (Hughes Aircraft Co.). Fr. FR 1538789  
     19680906, 15 pp. (French). CODEN: FRXXAK. PRIORITY: US 19660926.  
 AB The title films (100-1000 times more sensitive than previously  
     described films) were prep'd. by dispersing metallic compds.  
     sensitive to electromagnetic, electronic, or ion radiation, metallic  
     halides or acetylacetones, and Bi<sub>2</sub>O<sub>3</sub> in binding agents.  
     Nucleation sites were produced by exposure to 104 ergs/cm.<sup>2</sup> with  
     photons and to 20 ergs/cm.<sup>2</sup> exposure with electrons. Thus, a film  
     was prep'd. by grinding a mixt. 35 g. ZnO, 0.018 g. CuCl, 9 g.  
     Pliolite S-7, and 50 ml. PhMe for 1.5 hrs. with 100 g. of small  
     glass beads. A layer of the resulting mixt. was

coated on aluminized paper with a knife at a rate of 2 cm./sec. Dry films 28 and 7.6 .mu. thick were obtained from wet films 100 and 25 .mu. thick, resp. On developing latent images formed on the films, a resoln. of >228 line pairs/mm. was attained

IT 1314-98-3, uses and miscellaneous 7681-65-4  
     (photographic film contg., for radiation detection)  
 RN 1314-98-3 HCA  
 CN Zinc sulfide (ZnS) (9CI) (CA INDEX NAME)

S=Zn

RN 7681-65-4 HCA  
 CN Copper iodide (CuI) (8CI, 9CI) (CA INDEX NAME)

Cu-I

IC G03C; G11B  
 CC 76 (Nuclear Technology)  
 IT 554-13-2 1304-76-3 1310-53-8 1314-13-2, uses and miscellaneous  
     1314-98-3, uses and miscellaneous 3264-82-2 7646-78-8  
     7681-65-4 7718-54-9 7786-81-4 7787-70-4 10025-73-7  
     10028-18-9 10043-11-5 13395-16-9 14024-50-1 14024-63-6  
     18282-10-5 20548-54-3  
     (photographic film contg., for radiation detection)

L76 ANSWER 19 OF 22 HCA COPYRIGHT 2005 ACS on STN  
 65:25710 Original Reference No. 65:4759h, 4760a Chemical bonding in mineral crystals. Suchet, Jacques; Bailly, Francis (C. N. R. S., Bellevue/Meudon, Fr.). Ann. Chim. (Paris), 10(11-12), 517-32 (French) 1965.

AB The existence of shared electron pairs in diat. mols. is proposed and these are represented by a combination of functions derived from the H<sub>2</sub> and He models. An ionicity parameter is developed from comparison of the energy of the purely covalent state (H<sub>2</sub>) and purely ionic (He) with the thermodn. energy of the real mol. The method is extended to cryst. lattices and the ionicity is calcd. from thermochem. data, and from the cryst. arrangement. Effective charges on the lattice ions are discussed. Tables of ionicity and effective charge values are given for many binary crystals.  
 IT 1314-98-3, Zinc sulfide 7681-11-0, Potassium iodide 7681-65-4, Copper iodide, CuI  
     7681-82-5, Sodium iodide 21109-95-5, Barium sulfide, BaS  
     (bond ionicity and anionic effective charge in)  
 RN 1314-98-3 HCA  
 CN Zinc sulfide (ZnS) (9CI) (CA INDEX NAME)

## S—Zn

RN 7681-11-0 HCA  
CN Potassium iodide (KI) (8CI, 9CI) (CA INDEX NAME)

## I-K

RN 7681-65-4 HCA  
CN Copper iodide (CuI) (8CI, 9CI) (CA INDEX NAME)

## Cu—I

RN 7681-82-5 HCA  
CN Sodium iodide (NaI) (9CI) (CA INDEX NAME)

## I—Na

RN 21109-95-5 HCA  
CN Barium sulfide (BaS) (7CI, 9CI) (CA INDEX NAME)

## Ba=S

CC 8 (Crystallization and Crystal Structure)  
IT Crystals

(dislocations and step heights in, of apatite after cleavage and etching, bonding in, of diat. inorg. mols.)

IT 409-21-2, Silicon carbide 1302-09-6, Silver selenide, Ag<sub>2</sub>Se  
1302-81-4, Aluminum sulfide, Al<sub>2</sub>S<sub>3</sub> 1302-82-5, Aluminum selenide,  
Al<sub>2</sub>Se<sub>3</sub> 1303-00-0, Gallium arsenide 1303-11-3, Indium arsenide  
1304-28-5, Barium oxide 1304-56-9, Beryllium oxide 1305-84-6,  
Calcium selenide, CaSe 1306-23-6, Cadmium sulfide 1306-24-7,  
Cadmium selenide 1306-25-8, Cadmium telluride 1307-96-6, Cobalt  
oxide, CoO 1309-48-4, Magnesium oxide 1309-60-0, Lead oxide,  
PbO<sub>2</sub> 1310-32-3, Iron selenide, FeSe 1310-53-8, Germanium oxide  
1312-41-0, Indium antimonide 1312-45-4, Indium telluride, In<sub>2</sub>Te<sub>3</sub>  
1312-73-8, Potassium sulfide, K<sub>2</sub>S 1312-74-9, Potassium selenide,  
K<sub>2</sub>Se 1313-04-8, Magnesium selenide, MgSe 1313-22-0, Manganese  
selenide, MnSe 1313-59-3, Sodium oxide 1313-82-2, Sodium  
sulfide, Na<sub>2</sub>S 1313-85-5, Sodium selenide, Na<sub>2</sub>Se 1313-99-1,  
Nickel oxide, NiO 1314-11-0, Strontium oxide 1314-13-2, Zinc  
oxide 1314-84-7, Zinc phosphide, Zn<sub>3</sub>P<sub>2</sub> 1314-98-3, Zinc  
sulfide 1315-06-6, Tin selenide, SnSe 1315-07-7, Strontium

selenide, SrSe 1315-09-9, Zinc selenide, ZnSe 1317-39-1, Cu<sub>2</sub>O  
1344-43-0, Manganese oxide, MnO 1345-25-1, Iron oxide, FeO  
7447-40-7, Potassium chloride 7447-41-8, Lithium chloride  
7550-35-8, Lithium bromide 7646-85-7, Zinc chloride 7647-14-5,  
Sodium chloride 7647-15-6, Sodium bromide 7647-17-8, Cesium  
chloride 7681-11-0, Potassium iodide 7681-65-4,  
Copper iodide, CuI 7681-82-5, Sodium iodide  
7699-45-8, Zinc bromide 7718-54-9, Nickel chloride, NiCl<sub>2</sub>  
7758-02-3, Potassium bromide 7758-89-6, Copper chloride, CuCl  
7758-94-3, Iron chloride, FeCl<sub>2</sub> 7773-01-5, Manganese chloride,  
MnCl<sub>2</sub> 7775-41-9, Silver fluoride, AgF 7782-64-1, Manganese  
fluoride, MnF<sub>2</sub> 7783-39-3, Mercury fluoride, HgF<sub>2</sub> 7783-48-4,  
Strontium fluoride 7783-49-5, Zinc fluoride 7783-86-0, Iron  
iodide, FeI<sub>2</sub> 7783-90-6, Silver chloride 7783-96-2, Silver iodide  
7785-23-1, Silver bromide 7786-30-3, Magnesium chloride  
7787-69-1, Cesium bromide 7787-70-4, Copper bromide, CuBr  
7789-17-5, Cesium iodide 7789-19-7, Copper fluoride, CuF<sub>2</sub>  
7789-23-3, Potassium fluoride, KF 7789-24-4, Lithium fluoride  
7789-28-8, Iron fluoride, FeF<sub>2</sub> 7789-39-1, Rubidium bromide  
7789-42-6, Cadmium bromide 7789-43-7, Cobalt bromide, CoBr<sub>2</sub>  
7789-46-0, Iron bromide, FeBr<sub>2</sub> 7789-48-2, Magnesium bromide  
7789-75-5, Calcium fluoride 7790-29-6, Rubidium iodide  
7790-33-2, Manganese iodide, MnI<sub>2</sub> 7790-79-6, Cadmium fluoride  
7790-80-9, Cadmium iodide 7791-11-9, Rubidium chloride  
10026-17-2, Cobalt fluoride, CoF<sub>2</sub> 10043-11-5, Boron nitride, BN  
10101-63-0, Lead iodide, PbI<sub>2</sub> 10102-68-8, Calcium iodide  
10108-64-2, Cadmium chloride 10139-47-6, Zinc iodide 10377-51-2,  
Lithium iodide 10377-58-9, Magnesium iodide 10476-85-4,  
Strontium chloride 12002-99-2, Silver telluride, Ag<sub>2</sub>Te  
12005-95-7, Manganese arsenide, MnAs 12006-15-4, Cadmium arsenide,  
Cd<sub>3</sub>As<sub>2</sub> 12006-40-5, Zinc arsenide, Zn<sub>3</sub>As<sub>2</sub> 12009-36-8, Barium  
telluride, BaTe 12010-46-7, Indium, compd. with bismuth (BiIn)  
12010-50-3, Bismuth, compd. with manganese (BiMn) 12013-57-9,  
Calcium telluride, CaTe 12014-28-7, Cadmium phosphide, Cd<sub>3</sub>P<sub>2</sub>  
12014-29-8, Cadmium antimonide, Cd<sub>3</sub>Sb<sub>2</sub> 12017-13-9, Cobalt  
telluride, CoTe 12018-01-8, Chromium oxide, CrO<sub>2</sub> 12018-06-3,  
Chromium sulfide, CrS 12018-22-3, Chromium sulfide, Cr<sub>2</sub>S<sub>3</sub>  
12022-92-3, Iron antimonide, FeSb 12022-93-4, Iron antimonide,  
FeSb<sub>2</sub> 12022-94-5, Iron selenide, FeSe<sub>2</sub> 12023-03-9, Iron  
telluride, FeTe<sub>2</sub> 12023-39-1, Iron telluride, Fe<sub>2</sub>Te<sub>3</sub> 12024-22-5,  
Gallium sulfide, Ga<sub>2</sub>S<sub>3</sub> 12024-24-7, Gallium selenide, Ga<sub>2</sub>Se<sub>3</sub>  
12025-32-0, Germanium sulfide, GeS 12025-39-7, Germanium  
telluride, GeTe 12030-24-9, Indium sulfide, In<sub>2</sub>S<sub>3</sub> 12032-36-9,  
Magnesium sulfide, MgS 12032-44-9, Magnesium telluride, MgTe  
12032-82-5, Manganese antimonide, MnSb 12032-88-1, Manganese  
telluride, MnTe 12032-89-2, Manganese telluride, MnTe<sub>2</sub>  
12034-41-2, Sodium telluride, Na<sub>2</sub>Te 12035-47-1, Nickel phosphide,  
NiP<sub>2</sub> 12035-52-8, Nickel antimonide, NiSb 12035-53-9, Nickel

antimonide, NiSb<sub>2</sub> 12035-59-5, Nickel telluride, NiTe<sub>2</sub>  
 12036-21-4, Vanadium oxide, VO<sub>2</sub> 12039-40-6, Zinc antimonide,  
 Zn<sub>3</sub>Sb<sub>2</sub> 12040-08-3, Strontium telluride, SrTe 12043-29-7,  
 Aluminum telluride, Al<sub>2</sub>Te<sub>3</sub> 12044-16-5, Iron arsenide, FeAs  
 12044-49-4, Magnesium arsenide, Mg<sub>3</sub>As<sub>2</sub> 12048-46-3, Bismuth, compd.  
 with magnesium (2:3) 12052-38-9, Cobalt phosphide, CoP<sub>2</sub>  
 12052-49-2, Cobalt telluride, Co<sub>2</sub>Te<sub>3</sub> 12053-12-2, Chromium  
 antimonide, CrSb 12053-13-3, Chromium selenide, CrSe 12053-15-5,  
 Chromium telluride, CrTe 12053-36-0, Chromium selenide, Cr<sub>2</sub>Se<sub>3</sub>  
 12053-39-3, Chromium telluride, Cr<sub>2</sub>Te<sub>3</sub> 12056-07-4, Indium  
 selenide, In<sub>2</sub>Se<sub>3</sub> 12057-74-8, Magnesium phosphide, Mg<sub>3</sub>P<sub>2</sub>  
 12057-75-9, Magnesium antimonide, Mg<sub>3</sub>Sb<sub>2</sub> 12059-17-5, Nickel  
 telluride, Ni<sub>2</sub>Te<sub>3</sub> 12063-27-3, Iron sulfide, Fe<sub>2</sub>S<sub>3</sub> 12063-28-4,  
 Iron selenide, Fe<sub>2</sub>Se<sub>3</sub> 12063-98-8, Gallium phosphide 12064-03-8,  
 Gallium antimonide 12068-61-0, Nickel arsenide, NiAs<sub>2</sub>  
 12068-85-8, Iron sulfide, FeS<sub>2</sub> 12068-90-5, Mercury telluride, HgTe  
 12125-23-4, Manganese sulfide, MnS<sub>2</sub> 12125-63-2, Iron telluride,  
 FeTe 12136-45-7, Potassium oxide 12136-58-2, Lithium sulfide,  
 Li<sub>2</sub>S 12136-59-3, Lithium telluride, Li<sub>2</sub>Te 12136-60-6, Lithium  
 selenide, Li<sub>2</sub>Se 12142-40-4, Potassium telluride, K<sub>2</sub>Te  
 12299-98-8, Manganese selenide, MnSe<sub>2</sub> 12687-64-8, Gallium  
 telluride 13446-03-2, Manganese bromide, MnBr<sub>2</sub> 13446-74-7,  
 Rubidium fluoride 13462-88-9, Nickel bromide, NiBr<sub>2</sub> 13462-90-3,  
 Nickel iodide, NiI<sub>2</sub> 13463-67-7, Titanium oxide, TiO<sub>2</sub> 13573-08-5,  
 Germanium iodide, GeI<sub>2</sub> 15238-00-3, Cobalt iodide, CoI<sub>2</sub>  
 18820-29-6, Manganese sulfide, MnS 20548-54-3, Calcium sulfide,  
 CaS 20601-83-6, Mercury selenide, HgSe 20667-12-3, Silver oxide,  
 Ag<sub>2</sub>O 20859-73-8, Aluminum phosphide, AlP 21109-95-5,  
 Barium sulfide, BaS 21548-73-2, Silver sulfide, Ag<sub>2</sub>S  
 22205-45-4, Copper sulfide, Cu<sub>2</sub>S 22398-80-7, Indium phosphide, InP  
 22831-39-6, Magnesium silicide, Mg<sub>2</sub>Si 24304-00-5, Aluminum  
 nitride, AlN 25617-97-4, Gallium nitride, GaN 25617-98-5, Indium  
 nitride, InN 29095-38-3, Thallium antimonide, TlSb  
 (bond ionicity and anionic effective charge in)

L76 ANSWER 20 OF 22 HCA COPYRIGHT 2005 ACS on STN

54:56213 Original Reference No. 54:10931a-i .alpha.-Hydroxyalkyl acyl  
 sulfides and .alpha.-haloalkyl acyl sulfides. Bohme, Horst;  
 Bezzemberger, Horst; Clement, Marianne; Dick, Alfred; Nurnberg,  
 Eberhard; Schlephack, Werner (Univ. Marburg, Germany). Ann., 623,  
 92-102 (Unavailable) 1959. OTHER SOURCES: CASREACT 54:56213.

AB Thiocarboxylic acids reacted with aldehydes to form fairly stable  
 hemiacetals, RCH(OH)SCOR' (I), having characteristic odors; these  
 reacted with inorg. acid halides to yield RCHXSCOR' (II), the  
 halogen atoms in which were very reactive. Analyses of I and II  
 were given, and methods used in detg. their quant. hydrolysis  
 described. Paraformaldehyde (IIa) (9 g.) and 22.8 g. carefully  
 purified and dried AcSH (III) were heated at 100.degree. under N to

yield 26 g. I ( $R = H$ ,  $R' = Me$ ), pale yellow, b<sub>20</sub> 08-70.degree.. Formed similarly from AcH and 14 g. III at -15.degree. were 25 g. pale yellow I ( $R = R' = Me$ ), b<sub>20</sub> 31.degree., and 4.2 g. putative ( $AcSCHMeO$ )<sub>2</sub>CHMe, b<sub>20</sub> 153.degree.. EtCHO and 15.2 g. III gave a mixt. which, fractionated under CO<sub>2</sub> yielded 14 g. I ( $R = Et$ ,  $R' = Me$ ), b. 94-6.degree., with onion-like odor, and (from the still residue) putative ( $AcSCHEt$ )<sub>2</sub>O (IV), yellow, b<sub>16</sub> 143-5.degree.. Cooled with MeOH-Dry Ice, 76 g. III and 72 g. iso-PrCHO, after 12 hrs. at 20.degree. gave 130 g. I ( $R = iso-Pr$ ,  $R' = Me$ ), b. 96.degree.. I ( $R = H$ ,  $R' = Me$ ) (212 g.) at 0.degree. was added dropwise to 418 g. PCl<sub>5</sub>, barely covered with Et<sub>2</sub>O, stirred, and gradually taken to 20.degree., concd. in vacuo, and fractionated to give POCl<sub>3</sub> and 175 g. II ( $R = H$ ,  $R' = Me$ , X = Cl), b<sub>14</sub> 54.degree., having a sharp penetrating odor. Analogously formed was 55% II ( $R = H$ ,  $R' = Me$ , X = Br), a lacrimator, b<sub>8</sub> 65-66.degree.. NaI (30 g.) and 24.8 g. II ( $R = H$ ,  $R' = Me$ , X = Cl) kept 10 days in 80 cc. Me<sub>2</sub>CO, with intermittent shaking, filtered, and treated with Na<sub>2</sub>S<sub>2</sub>O<sub>3</sub> yielded 35 g. II ( $R = H$ ,  $R' = Me$ , X = I), b<sub>13</sub> 96.degree., lacrimator, rapidly turning yellow to brown. I ( $R = R' = Me$ ) (20 g.) in 40 cc. Et<sub>2</sub>O at -15.degree. was added gradually to 25 g. SOCl<sub>2</sub>, 26 g. pyridine, and 80 cc. Et<sub>2</sub>O, warmed slowly to 0.degree., decanted and fractionated, to give 11.5 g. II ( $R, R' = Me$ , X = Cl), b<sub>20</sub> 58.degree., colorless but turning yellow, also formed in 23% yield when equimolar amts. of AcH and III below 0.degree. were satd. with HCl gas. In the latter case, the still residue gave putative ( $AcSCHMe$ )<sub>2</sub>O, viscous yellow oil, b<sub>17</sub>, decompg. on standing to give unidentified needles. I ( $R = Et$ ,  $R' = Me$ ) treated as above with SOCl<sub>2</sub> gave 53% II ( $R = Et$ ,  $R' = Me$ , X = Cl), b<sub>14</sub> 67-8.degree., also formed from EtCHO, III, and HCl. The still residue yielded IV. Formed from I ( $R = iso-Pr$ ,  $R' = Me$ ) in Et<sub>2</sub>O and PCl<sub>3</sub> was 60% II ( $R = iso-Pr$ ,  $R' = Me$ , X = Cl), b<sub>10</sub> 72.degree.. To 5.3 g. I ( $R = H$ ,  $R' = Me$ ) and 8 g. pyridine in 30 cc. abs. Et<sub>2</sub>O at 20.degree. was added dropwise 4 g. AcCl and the mixt. refluxed 3 hrs. The cooled, decanted soln. on fractionation gave 4.5 g. AcOCH<sub>2</sub>SAc, b<sub>25</sub> 98.degree., and 2 g. Ac<sub>2</sub>S. Similarly formed from I ( $R = R' = Me$ ) were 68% AcOCHMeSAc, b<sub>20</sub> 58-9.degree., and Ac<sub>2</sub>S. Cl<sub>3</sub>CCOSH (36 g.) and 6 g. IIa, after 12 hrs. without external heating, gave 34 g. I ( $R = H$ ,  $R' = CC13$ ). Similarly, BzSH and IIa under N at 100.degree. yielded 62% I ( $R = H$ ,  $R' = Ph$ ), m. 46.degree. (Et<sub>2</sub>O, then ligroine), 0.118 g. of which in 20 cc. MeOH and 1 cc. glacial AcOH and 10 cc. 0.1N iodine gave almost quantitatively (BzS)<sub>2</sub>, m. 129-30.degree.. Prepd. similarly with only slight modifications were the following I ( $R$  and  $R'$  given): Me, Ph, b<sub>0.2</sub> 75.degree., 52% yield; Pr, Ph, b<sub>0.2</sub> 130.degree., 33% yield; CC13, Ph, m. 85.degree. (C<sub>6</sub>H<sub>6</sub>), 81% yield. I ( $R = H$ ,  $R' = Ph$ ) (16.8 g.) in Et<sub>2</sub>O was added slowly to PCl<sub>5</sub> with cooling, stirred 1.5 hrs. at 20.degree., filtered, evapd. below 50.degree., and kept 1 hr. at 40.degree./0.05 mm. The still residue at 0.degree. was shaken with

aq. NaHCO<sub>3</sub>, extd. with Et<sub>2</sub>O, and the ext. evapd. to give 60% II (R = H, R' = Ph, X = Cl), b0.05 92.degree., nD<sub>25</sub> 1.5998, crystg. about -10.degree., decompg. when heated into BzCl and thioformaldehyde. Formed similarly from the appropriate I was 33% II (R = CC<sub>13</sub>, R' = Ph, X = Cl), b0.01 85.degree. (C<sub>6</sub>H<sub>6</sub>), colorless but darkening rapidly. I (R = H, R' = CC<sub>13</sub>) with PC<sub>13</sub> gave 62% stable II (R = H, R' = CC<sub>13</sub>, X = Cl), b10 97.degree.. Kinetic studies were made on the rates of hydrolysis of the following esters at 100.degree. in 9 cc. H<sub>2</sub>O + 50 cc. dioxane; rate consts. are given in parentheses: ACOCH<sub>2</sub>Cl (2.2 .times. 10<sup>-2</sup>); BzOCH<sub>2</sub>Cl (1.7 .times. 10<sup>-3</sup>); AcSCH<sub>2</sub>Cl (1.6 .times. 10<sup>-3</sup>); BzSCH<sub>2</sub>Cl (5.1 .times. 10<sup>-5</sup>). These were 1st order reactions but in the case of **thio esters**, traces of free HCl were required to catalyze the reaction; otherwise a time lag occurred.

CC 10E (Organic Chemistry: Benzene Derivatives)

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44:49256 Original Reference No. 44:9375g-i, 9376a-i, 9377a-e

Sulfur-containing amines. VIII. Local anesthetics. 3. Clinton, R. O.; Salvador, U. J.; Laskowski, S. C. (Sterling-Winthrop Research Inst., Rensselaer, NY). Journal of the American Chemical Society, 71, 3366-70 (Unavailable) 1949. CODEN: JACSAT. ISSN: 0002-7863.

OTHER SOURCES: CASREACT 44:49256.

AB cf. C.A. 43, 6184a. Substantial improvements in yield were made in the synthesis of certain 3-dialkylaminopropanols, through modification of the usual secondary amine-trimethylene chlorohydrin procedure (Burnett, et al., C.A. 32, 524.7). 2-Methylpiperidine (I) (770 g.), 368 g. Cl(CH<sub>2</sub>)<sub>3</sub>OH (II), 800 cc. abs. EtOH, and 30 g. NaI or KI were refluxed with stirring for 24 hrs., cooled, treated with 90 g. Na in 1500 cc. abs. EtOH, filtered, the filter cake washed with ether, the filtrate distd. through a 12-in. Vigreux column to a head temp. of 122.degree., the still residue dild. with 3 vols. ether, filtered, and the filtrate distd., first at atm. pressure, then in vacuo, yielding 582 g. 3-(2-methyl-1-piperidyl)-1-propanol, b10-11 105-8.degree., nD<sub>25</sub> 1.4769. In a similar manner were prep'd. 92% 3-(4-morpholinyl)-1-propanol, b7-8 109-11.degree., nD<sub>25</sub> 1.4745; 93% 3-(1-piperidyl)-1-propanol, b9 93.5-5.degree., nD<sub>25</sub> 1.4755. Two new dialkylaminoethanols were prep'd. by the reaction between a secondary amine and ethylene oxide in boiling MeOH, conversion of the alcs. to chloride HCl salts with SOCl<sub>2</sub> in CHCl<sub>3</sub>, and prepn. of the thiols by the method of Clinton, et al. (C.A. 42, 5879e). Dialkylaminoalkyl thiolbenzoates, thiolcinnamates, and diphenylthiolacetates were prep'd. by the usual methods; the HCl salts were crystd. from abs. alc.-EtOAc or Me<sub>2</sub>CO-EtOAc. 2-(2-Methyl-1-piperidyl)ethyl p-butoxythiolbenzoate-HCl, prep'd. in quant. yield from 2-(2-methyl-1-piperidyl)ethanethiol and p-BuOC<sub>6</sub>H<sub>4</sub>COCl in dry C<sub>6</sub>H<sub>6</sub>, m. 171.4-3.0.degree. (from abs. EtOH). By a similar method were

prepd. 2-diethylaminoethyl p-hexyloxythiolbenzoate-HCl, white needles, m. 125.0-6.3.degree. (from EtOAc); 2-diethylaminoethyl 2-butoxy-4-quinolinecarbothiolate-HCl from cinchoninyl chloride and the thiol, pale yellow, cottony needles, m. 161-2.degree. (from abs. EtOH-EtOAc-ether), difficultly sol. in water; 3-(1-piperidyl)propyl 2-butoxy-4-quinolinecarbothiolate-HCl, slender white needles from abs. EtOH-EtOAc, m. 149-50.degree.. Intermediate dialkylaminoalkyl p-nitrothiolbenzoates were prepd. from p-O<sub>2</sub>N<sub>C</sub>H<sub>4</sub>COCl and the thiol in cold C<sub>6</sub>H<sub>6</sub> or in CHCl<sub>3</sub>-water-NaHCO<sub>3</sub>. Reduction was carried out by the method of West (C.A. 19, 1411). Some were obtained cryst., others could not be isolated either as bases or salts. The dialkylaminoalkyl p-alkylaminothiolbenzoates were prepd. either by reductive alkylation of the p-amino compds. with an aldehyde in the presence of Zn dust and AcOH, or directly from a p-alkylaminobenzoyl chloride-HCl and a dialkylaminoalkanethiol. Purification was easier by the 1st method. The bases usually yielded cryst. salts. p-H<sub>2</sub>N<sub>C</sub>H<sub>4</sub>COSCH<sub>2</sub>CH<sub>2</sub>NEt<sub>2</sub> (20 g.), 20.6 g. Zn dust, 19.5 g. AcOH, and 100 cc. C<sub>6</sub>H<sub>6</sub> brought to reflux on the steam bath, 6.9 g. PrCHO in 20 cc. C<sub>6</sub>H<sub>6</sub> added dropwise during 20 min., refluxing and stirring continued 1 hr., the mixt. filtered, the ppt. washed with warm dil. AcOH and with C<sub>6</sub>H<sub>6</sub>, the cooled filtrate made basic with 35% NaOH, filtered, the C<sub>6</sub>H<sub>6</sub> layer sepd., the aq. layer reextd. with C<sub>6</sub>H<sub>6</sub>, and the C<sub>6</sub>H<sub>6</sub> removed yielding 23.0 g. pale yellow oil, 2-diethylaminoethyl p-(butylamino)thiolbenzoate. (p-Propylamino) homolog, prepd. with EtCHO, picrate, canary-yellow needles from alc., m. 129.5-31.3.degree.; di-HCl salt, massive pale yellow prisms, m. 152.4-3.5.degree. (from abs. EtOH-Me<sub>2</sub>CO-EtOAc). Reductive alkylation of p-H<sub>2</sub>N<sub>C</sub>H<sub>4</sub>CO<sub>2</sub>Et with BuCHO yielded 95% Et p-(amylamino)benzoate, saponified with aq.-alc. NaOH to the free acid (99%), white needles from dil. alc., m. 135.5-6.5.degree.. The acid was converted into the acid chloride-HCl (either with PCl<sub>5</sub> or SOCl<sub>2</sub>), which with Et<sub>2</sub>NCH<sub>2</sub>CH<sub>2</sub>SH in C<sub>6</sub>H<sub>6</sub> yielded 45% 2-diethylaminoethyl p-(amylamino)thiolbenzoate (III), yellow oil. Reductive alkylation of p-H<sub>2</sub>N<sub>C</sub>H<sub>4</sub>COSCH<sub>2</sub>CH<sub>2</sub>NEt<sub>2</sub> with BuCHO yielded 90% easily purified III; picrate, pale orange needles from alc., m. 120.2-1.2.degree.; the cryst. di-HCl salt was too hygroscopic for analysis. 2-Diethylaminoethyl p-(heptylamino)thiolbenzoate citrate, prepd. from the base (reductive alkylation with BuCHO) and citric acid-H<sub>2</sub>O in Me<sub>2</sub>CO, rosettes of white needles from abs. EtOH-EtOAc, m. 123-4.degree. (decompn.). 2-Diethylaminoethyl p-(5-hydroxyamylamino)thiolbenzoate, prepd. from the p-amino base and HO(CH<sub>2</sub>)<sub>4</sub>CHO, large white prisms from C<sub>6</sub>H<sub>6</sub>-Skellysolve B, m. 72.3-3.6.degree.; picrate, tiny orange-yellow needles from alc., m. 96.6-8.2.degree.; phosphate, rosettes of white cottony needles from alc.-Me<sub>2</sub>CO. Thiolbenzoates, BzS(CH<sub>2</sub>)<sub>n</sub>R<sub>2</sub> (R, n salt, and m.p. of salt given); NEt<sub>2</sub>, 2, HCl, 137-8.5.degree.; NEt<sub>2</sub>, 3, HCl, 93.6-6.2.degree.; NEt<sub>2</sub>, 4, HCl, 115.5-16.5.degree.; 1-piperidyl, 3, HCl, 171-2.5.degree.; 2-methyl-1-piperidyl, 2, HCl,

200.5-1.5.degree.; 2-methyl-1-piperidyl, 3, HCl, 138.2-9.4.degree..  
 Diphenylthiolacetates, Ph<sub>2</sub>CHCOS(CH<sub>2</sub>)<sub>n</sub>NR<sub>2</sub>: 4-morpholinyl, 2, HCl,  
 205.4-6.5.degree.; 2-methyl-1-piperidyl, 2, phosphate,  
 170.5-1.0.degree.; 2-methyl-1-piperidyl, 3, HCl, 162-3.5.degree..  
 Thiolcinnamates, PhCH:CHCOS(CH<sub>2</sub>)<sub>n</sub>NR<sub>2</sub>: NMe<sub>2</sub>, 2, HCl,  
 178.5-9.4.degree.; NET<sub>2</sub>, 2, HCl, 156.5-8.degree.; NET<sub>2</sub>, 3, HCl,  
 110-13.8.degree.; NET<sub>2</sub>, 4, HCl, 131.8-3.degree.; 1-piperidyl, 3,  
 HCl, 177-9.5.degree.; 2-methyl-1-piperidyl, 2, HCl,  
 193.3-4.6.degree.; 2-methyl-1-piperidyl, 3, HCl, 163-5.degree..  
 p-Nitrothiolbenzoates, p-O<sub>2</sub>HC<sub>6</sub>H<sub>4</sub>COS(CH<sub>2</sub>)<sub>n</sub>NR<sub>2</sub>: NMe<sub>2</sub>, 2, HCl,  
 191.6-4.2.degree.; NET<sub>2</sub>, 3, HCl, 125-7.degree.; NET<sub>2</sub>, 4, HCl,  
 160.5-2.degree.; 4-morpholinyl, 2, HCl, 209.6-11.degree.;  
 4-morpholinyl, 3, HCl, 201-2.degree.; 1-piperidyl, 2, HCl,  
 175-6.6.degree.; 1-piperidyl, 3, HCl, 206-7.5.degree.;  
 2-methyl-1-piperidyl, 2, HCl, 163.5-5.9.degree.;  
 2-methyl-1-piperidyl, 3, HCl, 184-6.degree.; 2-methyl-1-pyrrolidyl,  
 2, HCl, 171.4-2.degree.; 2-methyl-1-pyrrolidyl, 2, picrate,  
 194.5-6.degree.. p-Aminothiolbenzoates, p-H<sub>2</sub>NC<sub>6</sub>H<sub>4</sub>COS(CH<sub>2</sub>)<sub>n</sub>NR<sub>2</sub>:  
 NMe<sub>2</sub>, 2, phosphate, 187-9.2.degree.; NET<sub>2</sub>, 3, phosphate,  
 209.8-10.6.degree.; NET<sub>2</sub>, 4, phosphate 199.2-200.8.degree.;  
 4-morpholinyl, 2, phosphate, 207-8.degree.; 4-morpholinyl, 2, base,  
 161-2.degree.; 4-morpholinyl, 3, phosphate, 129-35.6.degree.;  
 1-piperidyl, 2, phosphate, 204-6.degree.; 1-piperidyl, 2, base,  
 122.5-3.5.degree.; 1-piperidyl, 3, phosphate (the base crystd. from  
 dil. alc. as an unstable hydrate, m. 78-80.degree.),  
 210-11.2.degree.; 2-methyl-1-piperidyl, 2, phosphate,  
 196.7-7.8.degree.; 2-methyl-1-piperidyl, 2, base, 98.5-9.5.degree.;  
 2-methyl-1-piperidyl, 3, flavianate (base to flavianic acid ratio,  
 3:2), 223.4-4.0.degree.; NET<sub>2</sub>, 4-diethylamino-1-methylbutyl,  
 phosphate, 147-51.degree... p-(Butylamino)thiolbenzoates,  
 p-BuNHC<sub>6</sub>H<sub>4</sub>COS(CH<sub>2</sub>)<sub>n</sub>NR<sub>2</sub>: NMe<sub>2</sub>, 2, di-HCl, 157-61.degree.; NET<sub>2</sub>, 2,  
 di-HCl, 142.6-5.6.degree.; NET<sub>2</sub>, 2, citrate, 154.6-6.degree.; NET<sub>2</sub>,  
 3, di-HCl, 138-9.8.degree.; NET<sub>2</sub>, 4, di-HCl, 103.2-7.degree.;  
 4-morpholinyl, 2, di-HCl, 196.4-9.2.degree.; 4-morpholinyl, 2, base,  
 67-8.degree.; 4-morpholinyl, 3, di-HCl, 192.6-7.2.degree.;  
 1-piperidyl, 2, di-HCl, 200.4-3.4.degree.; 1-piperidyl, 2, base,  
 65.5-7.0.degree.; 1-piperidyl, 3, di-HCl, 186-8.4.degree.;  
 2-methyl-1-piperidyl, 2, sesquiphosphate, 112.5-24.5.degree.;  
 2-methyl-1-piperidyl, 3, di-HCl, 170.8-3.4.degree.;  
 2-methyl-1-piperidyl, 3, picrolonate, 134-7.degree.. NR<sub>2</sub>, n, X,  
 m.p. or b.p., nD<sub>25</sub>, yield, m.p. of picrate, are given for  
 dialkylaminoalkyl intermediates, R<sub>2</sub>N(CH<sub>2</sub>)<sub>n</sub>X: 2-methyl-1-piperidyl,  
 2, OH, b<sub>8</sub> 87.degree., 1.4788, 86%, 109-11.degree. (picrolonate,  
 yellow plates from abs. EtOH, m. 185-6.degree.);  
 2-methyl-1-piperidyl, 2, Cl.HCl, 184-5.degree., -, 98%, -;  
 2-methyl-1-piperidyl, 2, Cl, b<sub>16</sub> 88.0.degree., 1.4721, 65%,  
 136.1-6.7.degree.; 2-methyl-1-piperidyl, 2, isothiuronium  
 chloride-HCl, 226-7.degree., -, 94%, -; 2-methyl-1-piperidyl, 2, SH,

b14 96.5-7.degree., 1.4974, 57%, 117-18.degree.;  
 2-methyl-1-pyrrolidyl, 2, OH, b8 72.degree., 1.4683, 56%,  
 103-4.degree. (picrolonate, canary-yellow needles from abs. EtOH, m.  
 168-9.degree.); 2-methyl-1-pyrrolidyl, 2, isothiuronium  
 chloride-HCl, 205-8.degree., -, 96%, -; 2-methyl-1-pyrrolidyl, 2,  
 b11 74.0-4.5.degree., 1.4898, 44%, -; 4-morpholinyl, 3,  
 isothiuronium chloride-HCl, 218-20.degree., -, 95%, -;  
 4-morpholinyl, 3, SH, b11-12 110-12.degree., 1.4962, 42%,  
 129-30.degree.; 2-methyl-1-piperidyl, 3, Cl.HCl, 177.2-8.2.degree.,  
 -, 97%, -; 2-methyl-1-piperidyl, 3, thiuronium chloride-HCl,  
 186-8.degree., -, 97%, -; 2-methyl-1-piperidyl, 3, SH, b6  
 95.5.degree., 1.4950, 53%, 116-18.degree..

CC 10 (Organic Chemistry)

IT Benzoic acid, p-aminothiol-  
 Benzoic acid, p-butylaminothiol-  
 Cinchoninic acid, 2-butoxythiol-  
 Cinnamic acid, thiol-  
 Cinnamic acid, thiol-  
 (esters)

IT 98-91-9, Benzoic acid, thiol- 100-38-9, Ethanethiol,  
 2-diethylamino- 108-02-1, Ethanethiol, 2-dimethylamino-  
 150-13-0, Benzoic acid, p-amino- 4542-46-5, 4-  
 Morpholineethanethiol 4667-59-8, 1-Piperidinepropanethiol  
 4706-22-3, 1-Piperidineethanethiol 37673-57-7, Acetic acid,  
 diphenylthiol- 39923-99-4, Benzoic acid, p-nitrothiol-  
 55790-39-1, 1-Propanethiol, 3-diethylamino- 79825-63-1,  
 1-Butanethiol, 4-diethylamino-  
 (esters)

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18:11987 Original Reference No. 18:1625i,1626a-h The determination and separation of soluble sulfur salts, carbonates and hydroxides and of elementary sulfur. Jarvinen, K. K. Zeitschrift fuer Analytische Chemie, '63, 369-92 (Unavailable) 1924. CODEN: ZANCA8. ISSN: 0372-7920.

AB I. S. To det. elementary S treat in an Erlenmeyer flask with about 50 times its wt. of Br and 50 cc. H<sub>2</sub>O. After the S is dissolved (about 15 min.) add 5 cc. Et<sub>2</sub>O. After 10 min. boil off the Br and Et<sub>2</sub>O, preventing bumping by means of **glass beads**. Ppt. the sulfate from hot soln. with BaCl<sub>2</sub> and neutralize the large excess of HBr with concd. NH<sub>4</sub>OH. Cool and filter after 30 min. II. Na<sub>2</sub>S. For a soln. which is 0.2-0.3 N in regard to sulfide, sulfite, thiosulfate, hydroxide, and carbonate use 10-20 cc. for analysis. Add to it in a 100-cc. measuring flask an excess of BaCl<sub>2</sub> (20-30 cc. of 1 N) and dil. to the mark. After the ppt. has settled, pipet off 50 cc. into a 100- cc. measuring flask by means of a pipet to which is fastened a tube filled with cotton in order that any suspension of BaSO<sub>4</sub> may be removed. Add 10 cc. 2 N NH<sub>4</sub>Cl

and 10 cc. concd. NH<sub>4</sub>OH. and titrate with 0.2 N CuSO<sub>4</sub> until the soln. suddenly coagulates and the supernatant liquid is faintly blue. Dil. to the mark, filter and in a 50-ce. portion det. the excess Cu colorimetrically. The comparison soln. should contain the same amts. of NH<sub>4</sub>Cl and NH<sub>4</sub>OH (5 cc. in 50 cc.). To it add dropwise the Cu soln. until the same intensity of color is reached. Twice this vol. subtracted from the titration vol. gives the net cc. from which the Na<sub>2</sub>S is calcd. III. Na<sub>2</sub>Sx. Treat 10 cc. of the soln. with 5-10 cc. NH<sub>4</sub>Cl and an excess (10-15 cc.) of 0.2 N ZnCl<sub>2</sub> soln. which is N in NH<sub>3</sub>. Allow to stand, filter, wash, transfer the ppt. to the original flask and oxidize by shaking with 2-3 cc. of Br. Also treat the filter with Br water. After the ppt. is dissolved add 5 cc. of Et<sub>2</sub>O, shake, allow to stand 10 min., boil off the Br and ppt. with BaCl<sub>2</sub>. The excess S over the monosulfide S detd. above represents polysulfide S. IV. Na<sub>2</sub>SO<sub>3</sub>. Treat the filtrate from the ZnS of III with a few cc. of Na<sub>2</sub>CO<sub>3</sub> and neutralize with 2 N HCl using phenolphthalein. Add 0.2 N I soln. to a permanent color and ppt. the resulting sulfate with as little BaCl<sub>2</sub> as possible. After 15 min. ppt. the excess BaCl<sub>2</sub> with a few cc. of NaOH + Na<sub>2</sub>CO<sub>3</sub>. Filter, transfer to a beaker, dissolve the BaCO<sub>3</sub> with HCl, treat with Br water to oxidize the last traces of other S compds. and weigh the BaSO<sub>4</sub>. This wt. is a measure of sulfate and sulfite combined. It is to be diminished by the value for sulfate alone as detd. below. V. Na<sub>2</sub>S<sub>2</sub>O<sub>3</sub>. Pour the filtrate from IV or a portion of it into a mixt. of an excess of Br (3-5 cc.) and 20 cc. of H<sub>2</sub>O. Keep the soln. well agitated and make sure that the soln. is acid and that an excess of Br is constantly present. After 10 min. add 10% Et<sub>2</sub>O, allow to stand 10 min., boil off the Br and Et<sub>2</sub>O and ppt. the S as BaSO<sub>4</sub>. It is not necessary to drive off all the Br and I but this can be accomplished by long boiling and the addn. of KI. This permits the benzidine method being used if desired. VI. Na<sub>2</sub>SO. Boil a mixt. of 100 cc. H<sub>2</sub>O and 10-15 cc. 2 N HCl in a narrow-necked flask for 5 min. to drive off air and add dropwise with continuous boiling 10 cc. of the soln. to be tested. Continue boiling 10 min. and ppt. as BaSO<sub>4</sub>. VII. Total S. Add slowly and with constant agitation 10 cc. of the soln. in 100 cc. of H<sub>2</sub>O to a mixt. of the required amt. of Br (about 3 cc.) and H<sub>2</sub>O. An excess of Br should always be present. Allow to stand, add 10% Et<sub>2</sub>O, shake, allow to stand 10 min., boil off Br and Et<sub>2</sub>O and ppt. the S as BaSO<sub>4</sub>. VIII. NaOH. In a 100-cc. measuring flask treat 20 cc. of the soln. with the required amt. of BaCl<sub>2</sub>, add 10 cc. of 2 N NH<sub>4</sub>Cl, an excess of 0.2 N CuCl<sub>2</sub> and dil. to the mark. Allow to settle and pipet off 50 cc. of the nearly clear liquid. Titrate with 0.2 N HCl using litmus. IX. Na<sub>2</sub>CO<sub>3</sub>. Treat 20-40 cc. of the soln. in a 110-cc. measuring flask with 10-20 cc. of N KOH free from CO<sub>2</sub> and 3-6 cc. of 35% H<sub>2</sub>O<sub>2</sub>. Warm on the water bath 30 min. using a Bunsen valve for the escaping vapors. Cool and dil. to 110 cc. Titrate a 50-cc. portion with 0.2 NHCl using methyl orange and

another 50-cc. portion after adding 5-10 cc. BaCl<sub>2</sub> with 0.2 N HCl using phenolphthalein. The difference corresponds to the CO<sub>2</sub>. Run a blank using the same reagents.

CC 7 (Analytical Chemistry)

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L77 ANSWER 1 OF 42 HCA COPYRIGHT 2005 ACS on STN

141:28733 Production of antimicrobial lenses containing metal salts.

Rathore, Osman; Andersson, Ann Margaret; Meyers, Ann Marie Wong (Johnson & Johnson Vision Care, Inc., USA). PCT Int. Appl. WO 2004047879 A2 20040610, 76 pp. DESIGNATED STATES: W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VC, VN, YU, ZA, ZM, ZW; RW: AT, BE, BF, BJ, CF, CG, CH, CI, CM, CY, DE, DK, ES, FI, FR, GA, GB, GR, IE, IT, LU, MC, ML, MR, NE, NL, PT, SE, SN, TD, TG, TR. (English). CODEN: PIXXD2. APPLICATION: WO 2003-US37409 20031121. PRIORITY: US 2002-PV428620 20021122; US 2003-715903 20031118.

AB This invention relates to antimicrobial contact lenses which do not promote the adhesion and/or growth of bacteria or other microbes on their surface and methods for their prodn. The antimicrobial contact lenses comprise metal salts, wherein the molar solv. of the metal ion in water at about 25.degree. is greater than or equal to about  $2.0 \times 10^{-30}$  moles/L to about less than about 20 mol/L. A method of prep. an antimicrobial contact lens comprises, e.g., steps of (a) mixing a salt precursor with a lens formulation, wherein the salt precursor is sol. in a lens formulation at about 1 .mu.g/mL or greater, (b) forming the lens with the product of step (a), and (c) treating the lens with a metal agent. For example, silver iodide (a mean particle size distribution 1 to eq. 10 .mu.) was mixed with a hydrogel blend contg. 17.98% Macromer 5 (prepns. given), 28.0% mPDMS (mono-methacryloxypropyl-terminated polydimethylsiloxane), 14.0% TRIS, 26.0% DMA (N,N-dimethylacrylamide), 5.0% HEMA, 1.0% TEGDMA, 5.0% PVP, 2.0% Norbloc, 1.0% CGI 1850, and 0.02% Blue HEMA dissolved in dipropylene glycol/DPMA (30:70) in a ratio of 80:20, resp. The resulting mixt. was further dild. with the initial hydrogel blend without the silver salt (50%), degassed in a vacuum dessicator, and subsequently rolled at 50 rpms. Molds were coated with pHEMA before loading the blend to the molds, and the lenses were cured under visible light. The target silver concn., the initial silver concn. of the non-hydrated lenses and the final silver concn. of the hydrated lenses were 500 ppm, 285.4 ppm, and 134.8 ppm Ag+, resp., (52.8% Ag lost on

process).

IT 1314-98-3, Zinc sulfide, biological studies  
     (prod. of salt-contg. antimicrobial contact lenses)  
 RN 1314-98-3 HCA  
 CN Zinc sulfide (ZnS) (9CI) (CA INDEX NAME)

S—Zn

IT 7681-82-5, Sodium iodide, biological studies  
     (salt precursor; prodn. of salt-contg. antimicrobial contact  
     lenses)  
 RN 7681-82-5 HCA  
 CN Sodium iodide (NaI) (9CI) (CA INDEX NAME)

I—Na

IC ICM A61L012-08  
 ICS G02B001-04; G02C007-04  
 CC 63-7 (Pharmaceuticals)  
 Section cross-reference(s): 38  
 IT Polysiloxanes, biological studies  
     (Acquaflcon A; prodn. of salt-contg. antimicrobial contact  
     lenses)  
 IT Polysiloxanes, biological studies  
     (polyether-, perfluoro, Lotrafilcon A; prodn. of salt-contg.  
     antimicrobial contact lenses)  
 IT Fluoropolymers, biological studies  
     (polyether-polysiloxane-, Lotrafilcon A; prodn. of  
     salt-contg. antimicrobial contact lenses)  
 IT Polyethers, biological studies  
     (polysiloxane-, perfluoro, Lotrafilcon A; prodn. of  
     salt-contg. antimicrobial contact lenses)  
 IT 534-16-7, Silver carbonate 1314-13-2, Zinc oxide, biological  
 studies 1314-98-3, Zinc sulfide, biological studies  
 2923-28-6, Silver triflate 7429-90-5D, Aluminum, salts  
 7439-89-6D, Iron, salts 7439-95-4D, Magnesium, salts 7439-96-5D,  
 Manganese, salts 7440-02-0D, Nickel, salts 7440-05-3D,  
 Palladium, salts 7440-06-4D, Platinum, salts 7440-22-4D, Silver,  
 salts 7440-24-6D, Strontium, salts 7440-32-6D, Titanium, salts  
 7440-48-4D, Cobalt, salts 7440-50-8D, Copper, salts 7440-57-5D,  
 Gold, salts 7440-62-2D, Vanadium, salts 7440-66-6D, Zinc, salts  
 7440-70-2D, Calcium, salts 7761-88-8, Silver nitrate, biological  
 studies 7783-90-6, Silver chloride, biological studies  
 7783-96-2, Silver iodide 7783-97-3, Silver iodate 7784-09-0,  
 Silver phosphate 7785-23-1, Silver bromide 7798-23-4, Copper(II)  
 phosphate 10294-26-5, Silver sulfate 15525-64-1, Silver acetyl

acetone 15768-18-0, Silver lactate 18820-29-6, Manganese(II)  
sulfide 20667-12-3, Silver oxide 21548-73-2, Silver sulfide  
22205-45-4, Copper(I) sulfide  
(prodn. of salt-contg. antimicrobial contact lenses)  
IT 1112-67-0, Tetrabutyl ammonium chloride 7681-82-5, Sodium  
iodide, biological studies  
(salt precursor; prodn. of salt-contg. antimicrobial contact  
lenses)

L77 ANSWER 2 OF 42 HCA COPYRIGHT 2005 ACS on STN

140:369944 Human tissue-specific housekeeping genes identified by expression profiling. Aburatani, Hiroyuki; Yamamoto, Shogo (NGK Insulators, Ltd., Japan). PCT Int. Appl. WO 2004035785 A1 20040429, 372 pp. DESIGNATED STATES: W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VC, VN, YU, ZA, ZM, ZW; RW: AT, BE, BF, BJ, CF, CG, CH, CI, CM, CY, DE, DK, ES, FI, FR, GA, GB, GR, IE, IT, LU, MC, ML, MR, NE, NL, PT, SE, SN, TD, TG, TR. (Japanese). CODEN: PIXXD2.  
APPLICATION: WO 2002-JP10753 20021016.

AB Housekeeping genes commonly expressed in 35 different human tissues, oligonucleotide probes and DNA microarrays contg. them, are disclosed.

IC ICM C12N015-11

ICS C12Q001-68; G01N033-566

CC 3-3 (Biochemical Genetics)

Section cross-reference(s): 13

IT Ki-67 antigen

(antigen identified by monoclonal antibody Ki-67, gene MKI67; human tissue-specific housekeeping genes identified by expression profiling)

IT Adrenal gland

Bladder

Bone marrow

DNA microarray technology

Gene expression profiles, animal

Heart

Human

Kidney

Liver

Lung

Mammary gland

Muscle

Ovary

Pancreas

Pituitary gland

Placenta  
Prostate gland  
Salivary gland  
Skin

**Spinal cord**  
Spleen  
Stomach  
Testis  
Thymus gland  
Thyroid gland  
Trachea (anatomical)  
Uterus

    (human tissue-specific housekeeping genes identified by expression profiling)

IT Proteins

    (hypothetical protein MGC5540, gene MGC5540; human tissue-specific housekeeping genes identified by expression profiling)

IT 37270-64-7, Acyl CoA thioester hydrolase

    (cytosolic, gene HBACH; human tissue-specific housekeeping genes identified by expression profiling)

L77 ANSWER 3 OF 42 HCA COPYRIGHT 2005 ACS on STN

140:302345 Genes showing altered patterns of expression in the central nervous system in multiple sclerosis and their diagnostic and therapeutic use. Dangond, Fernando; Hwang, Daehee; Gullans, Steven R. (Brigham and Women's Hospital, Inc., USA). PCT Int. Appl. WO 2004028339 A2 20040408, 139 pp. DESIGNATED STATES: W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW; RW: AT, BE, BF, BJ, CF, CG, CH, CI, CM, CY, DE, DK, ES, FI, FR, GA, GB, GR, IE, IT, LU, MC, ML, MR, NE, NL, PT, SE, SN, TD, TG, TR. (English). CODEN: PIXXD2. APPLICATION: WO 2003-US29451 20030925. PRIORITY: US 2002-PV414219 20020927.

AB The present invention identifies a no. of gene markers whose expression is altered in multiple sclerosis (MS). These markers can be used to diagnose or predict MS in subjects, and can be used in the monitoring of therapies. In addn., these genes identify therapeutic targets, the modification of which may prevent MS development or progression.

IC ICM A61B

CC 15-8 (Immunochemistry)

Section cross-reference(s): 3, 14

IT **Spinal cord**

    (gene expression in, in multiple sclerosis; genes showing altered

patterns of expression in central nervous system in multiple sclerosis and their diagnostic and therapeutic use)

- IT Ras proteins  
 (p21c-Ki-ras, gene for, in treatment of multiple sclerosis; genes showing altered patterns of expression in central nervous system in multiple sclerosis and their diagnostic and therapeutic use)
- IT 50-56-6, Oxytocin, biological studies 9000-97-9, Aspartate aminotransferase 9001-15-4, Creatine kinase 9001-16-5, Cytochrome oxidase 9001-25-6, Blood-coagulation factor VII 9001-39-2, Glucose-6-phosphatase 9001-58-5, NAD+-isocitrate dehydrogenase 9001-59-6, Pyruvate kinase 9001-67-6, Sialidase 9001-69-8, Ornithine transcarbamylase 9001-99-4, RNase A 9003-99-0, Peroxidase 9004-10-8, Insulin, biological studies 9007-12-9, Calcitonin 9012-37-7, Aminoacylase 1 9013-81-4, Inosinicase 9014-43-1, Thymidylate kinase 9015-67-2, L-Alanine:glyoxylate aminotransferase 9015-81-0, 17.beta.-Hydroxysteroid dehydrogenase 9023-58-9, Argininosuccinate synthetase 9024-66-2, Mevalonate pyrophosphate decarboxylase 9025-42-7, .alpha.-Mannosidase 9025-90-5, Glyoxalase II 9026-46-4, Phosphomevalonate kinase 9026-59-9, Guanylate kinase 9028-04-0, NADHubiquinone reductase 9028-12-0, Aldehyde reductase 9028-48-2, Isocitrate dehydrogenase 9028-86-8, Aldehyde dehydrogenase 9029-60-1, Lipoxygenase 9030-22-2, Uridine phosphorylase 9030-23-3 9031-54-3, Acid sphingomyelinase 9032-76-2, Estrogen sulfotransferase 9032-89-7, UDP Galactose 4 epimerase 9034-39-3, Growth hormone releasing factor 9035-37-4, Cytochrome b 9037-67-6, 4-Aminobutyrate aminotransferase 9041-92-3 9054-75-5, Guanylate cyclase 9054-84-6, Xanthine Dehydrogenase 9059-16-9, Fatty acid .omega.-hydroxylase 9068-41-1, Carnitine palmitoyltransferase 12651-28-4, Transcobalamin II 37255-32-6, Dihydrodiol dehydrogenase 37270-64-7, Acyl-CoA **thioester** hydrolase 37277-82-0, Spermidine synthase 37289-34-2, DUTP pyrophosphatase 39279-34-0, .alpha.-1,3-Fucosyltransferase V 50812-37-8, Glutathione S-transferase 58319-92-9, ADP-ribosyltransferase 59088-23-2, Dihydroorotate dehydrogenase 60267-61-0, Ubiquitin 60382-71-0, Diacylglycerol kinase 61536-76-3, Endoribonuclease IV 63363-84-8, Follypolyglutamate synthetase 71124-51-1, .beta.-Galactoside .alpha.-2,3-sialyltransferase 71822-25-8, Methylenetetrahydrofolate Reductase 77106-95-7, Carbonyl reductase 78689-77-7, 6-Phosphofructo-2-kinase 80043-53-4, Gastrinreleasing peptide 80146-85-6, Transglutaminase 80449-01-0, DNA Topoisomerase 80449-31-6, Bikunin 81611-75-8, Fructose-2,6-bisphosphatase 82047-77-6, .alpha.-Mannosidase II 83268-44-4 83588-90-3, N-Acetylglucosaminyltransferase V 83869-56-1, GM-CSF 97089-64-0, Kinase (phosphorylating), phosphoprotein phosphatase 1 97089-82-2, 6-

Pyruvoyltetrahydropterin synthase 100469-84-9,  
 Preprothyrotropin-releasing hormone 102576-81-8,  
 N-Acetylglucosaminyltransferase I 102686-80-6, Nifedipine oxidase  
 103370-86-1, Humoral hypercalcemic factor 110736-49-7,  
 Proneurotensin 139639-23-9, Tissue plasminogen activator  
 142298-62-2, Shortchain alcohol dehydrogenase 144114-21-6,  
 Retropepsin 145018-73-1, Sarcolipin 145809-21-8, TIMP-3  
 147302-47-4, Receptor tyrosine kinase TrkC 148047-38-5,  
 8-OxodGTPase 149146-03-2, FGFR3 tyrosine kinase 153190-46-6,  
 Protein kinase(MLK-3) 154531-34-7, Heparinbinding EGFlike growth  
 factor 156621-18-0, Carboxypeptidase U 157857-10-8, Prostasin  
 158129-99-8, G Proteincoupled receptor kinase(GRK6) 166433-56-3,  
 ALK receptor tyrosine kinase 169592-56-7, CPP32 protease  
 172306-54-6, LIM kinase 2 179800-23-8, p38.beta. Kinase  
 183869-07-0, Proteinase inhibitor 9 187414-13-7, Myt1 Kinase  
 189460-40-0, Connective tissue growth factor 191359-13-4, MNK1  
 kinase 192230-91-4, Kinase (phosphorylating), gene c-jun protein  
 N-terminal kinase/p38 kinase 195009-21-3, Glial Growth Factor 2  
 330469-70-0, Azurocidin 404344-49-6, Protein kinase MEkk3  
 426206-97-5, .beta.-Defensin 2 475489-73-7, Calcium,  
 calmodulin-dependent protein kinase II  
 (gene for, in treatment of multiple sclerosis; genes showing  
 altered patterns of expression in central nervous system in  
 multiple sclerosis and their diagnostic and therapeutic use)

IT 139805-41-7, DNA (human gene ELA1 protein cDNA) 139809-66-8  
 139812-98-9, GenBank M15881 139836-80-9 139844-11-4  
 139846-30-3, DNA (human gene PSG1) 139846-73-4, DNA (human gene  
 ASM) 139848-08-1 139848-28-5, GenBank X16667 139848-32-1  
 140025-64-5, DNA (human gene CHMR4 plus flanks) 140026-61-5, DNA  
 (human clone PTR9 satellite 3) 140027-44-7, DNA (human gene CD1A  
 cDNA) 140029-92-1 140032-45-7, DNA (human gene MT1A)  
 140033-52-9, DNA (human gene OTC cDNA) 140034-16-8 140063-42-9,  
 DNA (human gene MRF-1 cDNA) 140069-95-0 140077-15-2, GenBank  
 X17651 140079-27-2 140084-29-3 140093-87-4 140094-49-1, DNA  
 (human gene brainprotein cDNA) 140106-98-5 140276-54-6, DNA  
 (human gene CGB) 140281-92-1, GenBank J00268 140282-20-8, DNA  
 (human clone GK-2 gene KRTL1 exon 9) 140284-23-7, DNA (human gene  
 NF-H) 140286-88-0, DNA (human gene TBG cDNA) 140317-39-1  
 140323-35-9 140345-24-0 140347-23-5 140506-80-5, DNA (human  
 beta-casein cDNA) 140508-18-5 140509-04-2, DNA (human gene GHRF  
 plus gene GHRF) 140741-08-8 140747-62-2 140787-65-1, DNA  
 (human gene COL2A1) 140789-18-0 140800-57-3 140803-99-2  
 140960-12-9 140997-58-6 141163-75-9 141165-06-2 141659-14-5,  
 DNA (human metallothionein III gene plus flanks) 142318-39-6  
 142361-75-9 143990-09-4 144014-70-0 144532-01-4, DNA (human  
 serotonin 1B receptor gene HGCR1 plus flanks) 145885-45-6, DNA  
 (human azurocidin gene plus flanks) 145885-47-8 145906-57-6  
 145906-66-7 148450-42-4 148450-62-8 148783-26-0, DNA (human

adenosine triphosphate synthetase subunit c gene P2 plus flanks)  
149278-23-9 149799-62-2 150001-22-2, DNA (human gene PRPH plus  
flanks) 150574-93-9 151576-60-2 152345-13-6 152371-82-9  
153057-22-8 153317-49-8 153378-26-8 153517-84-1 153961-88-7  
154486-24-5 154996-23-3 155150-75-7 155356-21-1 155458-61-0  
155461-35-1 156653-52-0 156675-03-5 156710-24-6 156827-60-0  
158246-12-9 158278-53-6 158885-04-2 159607-23-5 159994-88-4  
160042-15-9 160475-87-6 160830-42-2 160864-85-7, DNA (human  
clone Q1 cDNA) 160897-56-3 161102-17-6 161657-67-6  
165471-19-2 166424-16-4 166856-23-1 167713-42-0 168042-97-5  
168314-97-4 168514-99-6 168654-84-0 168857-68-9 169716-11-4  
170319-39-8 170676-15-0 171449-28-8 171639-23-9 171845-17-3,  
DNA (human cell line KG-1 cDNA) 171845-28-6, DNA (human cell line  
KG-1 cDNA) 171845-41-3, DNA (human cell line KG-1 cDNA)  
172013-21-7 172013-51-3 172013-63-7 172014-17-4 172186-02-6  
172712-00-4 173002-08-9 173003-32-2 173661-82-0 174055-17-5  
174594-49-1 175113-26-5 175383-99-0 176145-57-6 178410-19-0  
178997-95-0 178997-97-2, DNA (human cell line KG-1 cDNA)  
179443-08-4 179576-72-8 180924-32-7 181291-67-8 181613-89-8,  
DNA (human gene spot 14 plus flanks) 181922-76-9 182093-74-9  
182112-51-2 182179-65-3 183100-27-8 183391-54-0 183979-24-0  
184383-01-5 185083-66-3, DNA (human gene RFB30 plus flanks)  
185128-26-1 185235-69-2, DNA (human gene ST3Gal II cDNA)  
185773-76-6 185926-48-1 186007-73-8 186220-57-5, DNA (human  
gene EYA3 protein cDNA) 186363-70-2, DNA (human clone cosmid W12A  
) 186445-90-9 186487-30-9 186638-06-2 186681-64-1  
187132-41-8 187860-94-2, DNA (human acyl-CoA thioester  
hydrolase) 188421-03-6, DNA (human gene STE cDNA) 188469-84-3  
190147-16-1 190551-97-4, GenBank AF000545 191243-08-0, DNA  
(human gene hMLH1 cDNA) 192143-51-4 192895-02-6 194132-14-4  
194261-64-8, DNA (human cell line SCLC-6 cDNA) 194331-29-8, DNA  
(human cadherin FIB1 cDNA) 194331-30-1, DNA (human cadherin FIB2  
cDNA) 194958-09-3, DNA (human unknown cDNA) 196384-51-7  
196384-59-5 252776-94-6, DNA (human gene transferrin)  
252792-10-2 252798-08-6 252806-38-5 252817-43-9, DNA (human  
gene DCC cDNA) 382730-65-6 384423-45-4 384425-10-9  
384426-73-7 384430-35-7 384431-43-0 384435-50-1, DNA (human  
gene YY1 cDNA) 384438-91-9, DNA (human gene AR cDNA) 384439-21-8  
384439-43-4, DNA (human coagulation factor VII cDNA) 384440-08-8  
384450-88-8 384451-19-8, DNA (human gene IFNA) 384453-90-1, DNA  
(human cell line MOLT-4 cDNA) 384457-05-0, DNA (human gene HOX4D)  
384457-48-1, DNA (human clone Zn133, Zn102 cDNA) 384463-51-8  
384471-52-7, DNA (human gene GCK cDNA) 384475-10-9 384492-11-9,  
DNA (human gene HOX11 cDNA) 384492-73-3 384496-44-0  
384509-36-8 384512-40-7, DNA (human clone G9a-4C7 cDNA)  
384517-16-2 384519-38-4 384522-51-4, DNA (human strain  
Cytokeratin 17 ) 384523-80-2, DNA (human cell line TT gene ASH1  
cDNA) 384530-58-9 384549-48-8, DNA (human conatactin cDNA plus

flanks) 384555-01-5, DNA (human cell line KG-1 cDNA) 384555-26-4  
384560-32-1, DNA (human glucose-6-phosphatase cDNA) 384562-31-6,  
DNA (human mucin) 384593-87-7, DNA (human cell line KG-1 cDNA)  
384614-23-7, DNA (human cell line Jurkat cDNA) 384631-30-5, DNA  
(human clone F-T03796 cDNA) 384631-46-3, DNA (human cell line KG-1  
cDNA) 384640-80-6 384653-03-6, GenBank AB000584 384655-82-7  
384662-99-1, DNA (human clone 6.111 cDNA) 384675-36-9, DNA (human  
clone HSpurH cDNA) 384690-93-1, DNA (human p38Beta MAP kinase  
cDNA) 384693-58-7, DNA (human gene TCTEL1 cDNA) 384695-13-0, DNA  
(human clone 27G4 cDNA) 384735-58-4 384736-07-6, DNA (human gene  
Myt1 cDNA) 384746-66-1, DNA (human gravin) 384748-92-9  
384976-62-9, DNA (human gene IFNAR cDNA) 385026-09-5 385028-92-2  
385032-56-4 385038-39-1 385083-57-8 385109-97-7, DNA (human  
gene h-lamp-2 cDNA) 385122-85-0, DNA (human gene ERH cDNA)  
385334-64-5 389176-63-0, DNA (human cell line A431 cDNA)  
389179-86-6 389181-98-0 389184-37-6 389184-63-8 389184-83-2,  
DNA (human gene CBR cDNA) 389185-48-2, GenBank M25809  
(nucleotide sequence; genes showing altered patterns of  
expression in the central nervous system in multiple sclerosis  
and their diagnostic and therapeutic use)

L77 ANSWER 4 OF 42 HCA COPYRIGHT 2005 ACS on STN

139:193508 Chain cleavage and sulfoxidation of thiastearoyl-ACP upon reaction with stearoyl-ACP desaturase. White, Robert D.; Fox, Brian G. (Dep. of Biochem., Coll. of Agricultural and Life Sci., Univ. of Wisconsin, Madison, WI, 53706-1544, USA). Biochemistry, 42(25), 7828-7835 (English) 2003. CODEN: BICHAW. ISSN: 0006-2960.

Publisher: American Chemical Society.

AB The fatty acid analogs 9- and 10-thiastearate were converted to acyl-ACP derivs. by in vitro enzymic synthesis and reacted with the reconstituted sol. stearoyl-ACP .DELTA.9 desaturase complex. Electrospray ionization mass spectral anal. of the acyl chains purified from the reaction mixts. showed that 10-thiastearoyl-ACP was converted to the 10-sulfoxide as the sole product. In the presence of 18O<sub>2</sub>, the sulfoxide oxygen was found to be derived exclusively from O<sub>2</sub>. This result confirms the ability of the sol. stearoyl-ACP desaturase to catalyze O atom transfer in the presence of the appropriate substrate analog. Inhibition studies showed that 10-thiastearoyl-ACP was a mixed-type inhibitor of 18:0-ACP, with an apparent KI of .apprx.10 .mu.M. Comparable reactions of the stearoyl-ACP desaturase complex with 9-thiastearoyl-ACP gave the 9-sulfoxide as .apprx.5% of the total products, with the O atom again exclusively derived from O<sub>2</sub>. The remaining 95% of the total products arose from an acyl chain cleavage reaction between S-9 and C-10. Matrix-assisted laser desorption ionization time-of-flight mass spectral anal. showed that 9-thiastearoyl-ACP had a mass of 9443 amu while the acyl chain cleavage product had a mass of 9322 amu, corresponding to the calcd. mass of

8-mercaptopoctanoyl-ACP. Recovery of the acyl chain from the ACP product gave the disulfide of 8-mercaptopoctanoate (mass of 349.1 amu), arising from the dimerization of 8-mercaptopoctanoate during product workup. Gas chromatog.-mass spectral anal. also showed the accumulation of nonanal in sealed reaction vials, accounting for the other product of the acyl chain cleavage reaction. The reactivity at both the 9 and 10 positions of the thia-substituted acyl-ACPs is consistent with the proximity of both positions to the diiron center oxidant in the enzyme-substrate complex. Moreover, the differential reactivity of the 9- and 10-thiastearoyl-ACPs also suggests position-dependent consequences of the reaction within the .DELTA.9D active site. Mechanisms accounting for both sulfoxidn. and acyl cleavage reactions by the stearoyl-ACP .DELTA.9 desaturase are proposed.

CC 7-4 (Enzymes)

Section cross-reference(s): 6

IT 105099-89-6D, 10-Thiastearic acid, **thioesters** with acyl-carrier protein .. 106689-24-1D, 9-Thiastearic acid, **thioesters** with acyl-carrier protein

(substrate; chain cleavage and oxygen atom addn. to sulfur of thiastearoyl-acyl carrier protein ACP by stearoyl-ACP desaturase)

L77 ANSWER 5 OF 42 HCA COPYRIGHT 2005 ACS on STN

138:381687 Resonance energy transfer assays based on luminescent inorganic doped nanoparticles. Bohmann, Kerstin; Hoheisel, Werner; Koehler, Burkhard; Dorn, Ingmar (Bayer Aktiengesellschaft, Germany).

PCT Int. Appl. WO 2003040024 A2 20030515, 55 pp. DESIGNATED STATES: W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW; RW: AT, BE, BF, BJ, CF, CG, CH, CI, CM, CY, DE, DK, ES, FI, FR, GA, GB, GR, IE, IT, LU, MC, ML, MR, NE, NL, PT, SE, SN, TD, TG, TR. (German). CODEN: PIXXD2. APPLICATION: WO 2002-EP12256 20021104. PRIORITY: DE 2001-10153829 20011105.

AB The invention relates to an assay based on resonance energy transfer (RET), comprising a 1st mol. group A, which is marked with .gtoreq.1 energy donor, and .gtoreq.1 2nd mol. group B which is marked with .gtoreq.1 energy acceptor, the donor comprising a mol. or particle which can be energetically excited by an external radiation source and which is fluorescence enabled and the acceptor comprising a mol. or particle which can be excited by energy transfer via the donor with partial or complete quenching of the donor fluorescence, and the donor and/or acceptor comprise luminescing inorg. doped nanoparticles having an expansion of .1toreq. 50 nm, emitting electromagnetic radiation with stokes or anti-stokes scattering after energetic excitation. Thus LaPO<sub>4</sub>:Ce,Tb nanoparticles were

synthesized; the nanoparticles were treated with ethylene glycol and sulfuric acid at 210 .degree.C in inert gas atm. for 3 h. The particles were dissolved at ca. 135.degree.C; ethylene glycol was partially evapd. and the soln. was dialyzed over night against water. The surface treated nanoparticles underwent oxidn. with potassium permanganate in the presence of sulfuric acid for carboxy functionalization.

IT 7681-82-5, Sodium iodide (**NaI**), uses  
(Tl-doped; resonance energy transfer assays based on luminescent inorg. doped nanoparticles)

RN 7681-82-5 HCA

CN Sodium iodide (**NaI**) (9CI) (CA INDEX NAME)

I—Na

IT 1314-98-3, Zinc sulfide, uses  
(doped with Tb, TbF<sub>3</sub>, EuF<sub>3</sub>, Mn, Ag, Eu, Cu, or another lanthanides; resonance energy transfer assays based on luminescent inorg. doped nanoparticles)

RN 1314-98-3 HCA

CN Zinc sulfide (**ZnS**) (9CI) (CA INDEX NAME)

S—Zn

IC ICM B82B  
CC 9-5 (Biochemical Methods)  
Section cross-reference(s): 3, 73  
IT Interleukin 2  
(human recombinant, conjugate with bromotrimethyl silane  
-treated LaPO<sub>4</sub>:Eu; resonance energy transfer assays based on luminescent inorg. doped nanoparticles)

IT 7681-82-5, Sodium iodide (**NaI**), uses  
(Tl-doped; resonance energy transfer assays based on luminescent inorg. doped nanoparticles)

IT 1314-98-3, Zinc sulfide, uses  
(doped with Tb, TbF<sub>3</sub>, EuF<sub>3</sub>, Mn, Ag, Eu, Cu, or another lanthanides; resonance energy transfer assays based on luminescent inorg. doped nanoparticles)

IT 2857-97-8, Bromotrimethyl silane  
(silanization of LaPO<sub>4</sub>:Ce,Tb and LaPO<sub>4</sub>:Eu nanoparticles;  
resonance energy transfer assays based on luminescent inorg.  
doped nanoparticles)

IT 524934-34-7DP, conjugate with bromotrimethyl silane  
-treated LaPO<sub>4</sub>:Ce,Tb nanoparticles, and binding to biotin,  
oligonucleotide or antibody  
(spacer; resonance energy transfer assays based on luminescent

inorg. doped nanoparticles)

L77 ANSWER 6 OF 42 HCA COPYRIGHT 2005 ACS on STN

137:26782 Preparation of nanocrystallites from metal-containing salts.

Bawendi, Moungi; Stott, Nathan E. (USA). U.S. Pat. Appl. Publ. US 2002071952 A1 20020613, 6 pp. (English). CODEN: USXXCO.

APPLICATION: US 2000-732013 20001208.

AB The invention features methods of manufg. a nanocrystallite. The nanocrystallite has a diam. of <150 .ANG.. The nanocrystallite can be a member of a population of nanocrystallites having a narrow size distribution. The nanocrystallite can be a sphere, rod, disk, or other shape. The nanocrystallite can include a core of a semiconductor material. The core can have an overcoating on a surface of the core. The overcoating can be a semiconductor material having a compn. different from the compn. of the core. Semiconducting nanocrystallites can luminesce and can have high emission quantum efficiencies. The method forms the nanocrystallite from an M-contg. salt. The nanocrystallite can include a core MX, where M is Cd, Zn, Mg, Hg, Al, Ga, In, Tl, or mixts. thereof, and X is O, S, Se, Te, N, P, As, Sb, or mixts. thereof. The M-contg. salt can be the source of M in the nanocrystallite. An X-contg. compd. can be the source of the X in the nanocrystallite. The M-contg. salt can be a safe, inexpensive starting material for manufg. a nanocrystallite relative to typical organometallic reagents which can be air sensitive, pyrophoric, or volatile. The M-contg. salt is not air sensitive, is not pyrophoric, and is not volatile relative to organometallic reagents.

IT 1314-98-3, Zinc sulfide (ZnS), reactions

7784-23-8, Aluminum iodide

(prepn. of nanocrystallites from metal-contg. salts)

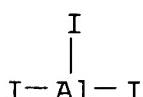
RN 1314-98-3 HCA

CN Zinc sulfide (ZnS) (9CI) (CA INDEX NAME)

S=Zn

RN 7784-23-8 HCA

CN Aluminum iodide (AlI<sub>3</sub>) (8CI, 9CI) (CA INDEX NAME)



IC ICM H01L021-00

ICS B32B005-16; B32B009-00; B32B015-02; B32B017-02; B32B019-00;  
B32B021-02; B32B023-02; B32B027-02

NCL 428403000

CC 76-2 (Electric Phenomena)  
 Section cross-reference(s): 73  
 IT Silanes

(amino, donor compd.; prepn. of nanocrystallites from metal-contg. salts)

IT 139-12-8, Aluminum acetate 142-72-3, Magnesium acetate 513-78-0, Cadmium carbonate 543-90-8, Cadmium acetate 546-93-0, Magnesium carbonate 557-34-6, Zinc acetate 592-63-2 1306-23-6, Cadmium sulfide (CdS), reactions 1306-24-7, Cadmium selenide, reactions 1309-42-8, Magnesium hydroxide 1314-98-3, Zinc sulfide (ZnS), reactions 1315-09-9, Zinc selenide 2571-06-4, Gallium acetate 3486-35-9, Zinc carbonate 6533-73-9, Thallium carbonate 7699-45-8, Zinc bromide 7727-15-3, Aluminum bromide 7784-23-8, Aluminum iodide 7789-40-4, Thallium bromide 7789-42-6, Cadmium bromide 7789-48-2, Magnesium bromide 7790-30-9, Thallium iodide 7790-80-9, Cadmium iodide 10139-47-6, Zinc iodide 10377-58-9, Magnesium iodide 12023-99-3, Gallium hydroxide 12026-78-7, Thallium hydroxide 13450-88-9, Gallium bromide 13450-91-4, Gallium iodide 13963-57-0, Aluminum acetylacetone 14024-55-6, Mercuric acetylacetone 14024-56-7, Magnesium acetylacetone 14024-63-6, Zinc acetylacetone 14219-90-0, Thallium acetylacetone 14405-43-7, Gallium, tris(2,4-pentanedionato-.kappa.O,.kappa.O')-, (OC-6-11)- 14405-45-9, Indium acetylacetone 14455-29-9, Aluminum carbonate 14689-45-3 15843-14-8, Thallium acetate 20427-58-1, Zinc hydroxide 20661-21-6, Indium hydroxide 21041-95-2, Cadmium hydroxide 21645-51-2, Aluminum hydroxide, reactions 25114-58-3, Indium acetate 37320-91-5, Mercury iodide 39321-13-6, Mercury hydroxide 50968-00-8, Mercury carbonate 51312-23-3, Mercury bromide 59392-50-6, Indium iodide 60459-04-3, Indium carbonate 61811-52-7, Indium bromide 142712-19-4, Carbonic acid, Gallium salt

(prepn. of nanocrystallites from metal-contg. salts)

L77 ANSWER 7 OF 42 HCA COPYRIGHT 2005 ACS on STN

136:209112 Doped elongated semiconductors, growing such semiconductors, devices including such semiconductors, and fabricating such devices. Lieber, Charles M.; Cui, Ying; Duan, Xiangfeng; Huang, Yung-Sheng (President and Fellows of Harvard College, USA). PCT Int. Appl. WO 2002017362 A2 20020228, 173 pp. DESIGNATED STATES: W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM; RW: AT, BE, BF, BJ, CF, CG, CH, CI, CM, CY, DE, DK, ES, FI, FR, GA, GB, GR, IE, IT, LU, MC, ML, MR, NE, NL, PT, SE, SN, TD, TG, TR. (English). CODEN: PIXXD2. APPLICATION: WO

2001-US26298 20010822. PRIORITY: US 2000-PV226835 20000822; US 2000-PV254745 20001211; US 2001-PV292121 20010518; US 2001-PV292035 20010518; US 2001-PV292045 20010518; US 2001-PV291896 20010518.

AB A bulk-doped semiconductor that is at least one of the following: a single crystal, an elongated and bulk-doped semiconductor that, at any point along its longitudinal axis, has a largest cross-sectional dimension <500 nm, and a free-standing and bulk-doped semiconductor with at least one portion having a smallest width of <500 nm. Such a semiconductor may comprise an interior core comprising a 1st semiconductor; and an exterior shell comprising a different material than the 1st semiconductor. Such a semiconductor may be elongated and may have, at any point along a longitudinal section of such a semiconductor, a ratio of the length of the section to a longest width which is >4:1, or >10:1, or >100:1, or even >1000:1. At least one portion of such a semiconductor may have a smallest width of <200 nm, or <150 nm, or <100 nm, or <80 nm, or <70 nm, or <60 nm, or <40 nm, or <20 nm, or <10 nm, or even <5 nm. Such a semiconductor may be a single crystal and may be free-standing. Such a semiconductor may be either lightly n-doped, heavily n-doped, lightly p-doped or heavily p-doped. Such a semiconductor may be doped during growth. Such a semiconductor may be part of a device, which may include any of a variety of devices and combinations thereof, and a variety of assembling techniques may be used to fabricate devices from such a semiconductor. Two or more of such a semiconductors, including an array of such semiconductors, may be combined to form devices, for example, to form a crossed p-n junction of a device. Such devices at certain sizes may exhibit quantum confinement and other quantum phenomena, and the wavelength of light emitted from one or more of such semiconductors may be controlled by selecting a width of such semiconductors. Such semiconductors and device made therefrom may be used for a variety of applications.

IT 1314-98-3, Zinc sulfide, processes 7681-65-4,

Copper iodide (CuI)

(prepn. of elongated doped semiconductor for devices)

RN 1314-98-3 HCA

CN Zinc sulfide (ZnS) (9CI) (CA INDEX NAME)

S==Zn

RN 7681-65-4 HCA

CN Copper iodide (CuI) (8CI, 9CI) (CA INDEX NAME)

Cu—I

IC ICM H01L021-00

CC 76-3 (Electric Phenomena)

Section cross-reference(s): 9, 73, 75, 77

IT Vapor deposition process  
    (laser ablation; prepn. of elongated doped semiconductor for devices)

IT Evaporation  
    (laser-induced; prepn. of elongated doped semiconductor for devices)

IT Atomic force microscopes

Colloids

Crystal growth

Diodes

Doping

Electric amplifiers

Electric switches

Electroluminescent devices

Electron acceptors

Electron beam lithography

Electron donors

Ferromagnetic semiconductor materials

Field effect transistors

Field emitters

Heterojunction bipolar transistors

Inverters

Langmuir-Blodgett films

Light sources

Logic circuits

Magnetic semiconductor materials

Microscopes

Nanowires

Optical sensors

Photodiodes

Photoelectric devices

Photonics

Phototransistors

Quantum wire devices

Rectifiers

Scanning tunneling microscopes

Schottky diodes

Semiconductor lasers

Semiconductor memory devices

Solar cells

Transformers

Tunnel diodes

p-n Semiconductor junctions  
    (pregn. of elongated doped semiconductor for devices)

IT Magnetic apparatus  
    (spintronic; prepn. of elongated doped semiconductor for devices)

IT 156-62-7, Calcium cyanamide (CaCN<sub>2</sub>) 409-21-2, Silicon monocarbide, processes 1303-00-0, Gallium arsenide, processes 1303-11-3, Indium arsenide, processes 1306-23-6, Cadmium sulfide, processes 1306-24-7, Cadmium selenide, processes 1306-25-8, Cadmium telluride (CdTe), processes 1312-41-0 1313-04-8, Magnesium selenide (MgSe) 1314-13-2, Zinc oxide (ZnO), processes 1314-87-0, Lead sulfide (PbS) 1314-91-6, Lead telluride (PbTe) 1314-95-0, Tin sulfide (SnS) 1314-98-3, Zinc sulfide, processes 1315-06-6, Tin selenide (SnSe) 1315-09-9, Zinc selenide (ZnSe) 1315-11-3, Zinc telluride (ZnTe). 1317-36-8, Lead oxide (PbO), processes 1344-28-1, Alumina, processes 1344-48-5, Mercury sulfide (HgS) 7440-21-3, Silicon, processes 7440-31-5, Tin, processes 7681-65-4, Copper iodide (CuI) 7758-89-6, Copper chloride (CuCl) 7775-41-9, Silver fluoride (AgF) 7782-40-3, Diamond, processes 7783-90-6, Silver chloride (AgCl), processes 7783-96-2, Silver iodide (AgI) 7785-23-1, Silver bromide (AgBr) 7787-70-4, Copper bromide (CuBr) 10043-11-5, Boron nitride, processes 11148-21-3 12005-69-5, Boron monoarsenide 12006-14-3, Cadmium tin arsenide (CdSnAs<sub>2</sub>) 12011-50-6, Aluminum carbide oxide (Al<sub>2</sub>CO) 12025-31-9, Germanium zinc phosphide (GeZnP<sub>2</sub>) 12025-32-0, Germanium sulfide (GeS) 12025-39-7, Germanium telluride (GeTe) 12032-36-9, Magnesium sulfide (MgS) 12033-89-5, Silicon nitride (Si<sub>3</sub>N<sub>4</sub>), processes 12040-02-7, Tin telluride (SnTe) 12063-98-8, Gallium phosphide, processes 12064-03-8 12065-10-0, Germanium selenide (GeSe) 12065-36-0, Germanium nitride (Ge<sub>3</sub>N<sub>4</sub>) 12068-90-5, Mercury telluride (HgTe) 12069-00-0, Lead selenide (PbSe) 12232-25-6, Beryllium selenide (BeSe) 12232-27-8, Beryllium telluride (BeTe) 12265-44-0 12340-38-4 13478-41-6, Copper fluoride (CuF) 13598-22-6, Beryllium sulfide (BeS) 20205-91-8, Boron monophosphide 20601-83-6, Mercury selenide (HgSe) 20859-73-8, Aluminum phosphide 22398-80-7, Indium phosphide, processes 22831-42-1, Aluminum arsenide 24304-00-5, Aluminum nitride 25152-52-7 25617-97-4, Gallium nitride 37255-79-1 71818-44-5 106804-39-1, Gallium arsenide phosphide (GaAs0.6P0.4) 155110-82-0, Indium arsenide phosphide (InAs0.5P0.5) 401481-26-3, Copper germanium phosphide (CuGeP<sub>2</sub>) 401481-28-5, Copper phosphide silicide (Cu<sub>3</sub>PSi<sub>2</sub>) 401481-30-9 401481-32-1 (prepn. of elongated doped semiconductor for devices)

L77 ANSWER 8 OF 42 HCA COPYRIGHT 2005 ACS on STN

136:62543 Spintronic devices and method for injecting

spin-polarized electrical currents into semiconductors.

Kirczenow, George (Simon Fraser University, Can.). PCT Int. Appl. WO 2001099137 A2 20011227, 40 pp. DESIGNATED STATES: W: AE, AG, AL, AM, AT, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, CZ, DE, DE, DK, DK, DM, DZ, EC, EE, ES, FI, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK,

LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT,  
RO, RU, SD, SE, SG, SI, SK, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US,  
UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ; RW: AT, BE, BF,  
BJ, CF, CG, CH, CI, CM, CY, DE, DK, ES, FI, FR, GA, GB, GR, IE, IT,  
LU, MC, ML, MR, NE, NL, PT, SE, SN, TD, TG, TR. (English). CODEN:  
PIXXD2. APPLICATION: WO 2001-CA944 20010619. PRIORITY: US  
2000-PV212646 20000619; US 2000-PV218131 20000714; US 2000-679603  
20001005.

AB Atomically ordered interfaces between semiconductor and ferromagnetic materials provide **spin** filters. The **spin** filters may be used to inject strongly **spin** polarized currents into a semiconductor for use in **spintronic** devices. Some suitable combinations of ferromagnetic metal and semiconductor include hcp. Co or fcc. Ni or fcc. Co (ferromagnetic metals) interfaced to GaSb, InAs, ZnTe, CdSe or GaAs or InP or Ge or BN or semiconductor alloys that include any of these (semiconductors).

IT 1314-98-3, Zinc sulfide, uses 7681-65-4, Copper iodide (CuI)  
(**spintronic** devices and method for injecting **spin**-polarized elec. currents into semiconductors)

RN 1314-98-3 HCA

CN Zinc sulfide (ZnS) (9CI) (CA INDEX NAME)

S— Zn

RN 7681-65-4 HCA  
CN Copper iodide (CuI) (8CI, 9CI) (CA INDEX NAME)

Cu—I

IC ICM H01J001-34  
CC 76-3 (Electric Phenomena)  
Section cross-reference(s): 77  
ST **spintronic** semiconductor ferromagnetic interface  
**spin** polarized current injection  
IT Metals, uses  
(ferromagnetic; **spintronic** devices and method for  
injecting **spin**-polarized elec. currents into  
semiconductors)  
IT Ferromagnetic materials  
Semiconductor materials  
Solid-solid interface  
**Spin** polarization  
(**spintronic** devices and method for injecting  
**spin**-polarized elec. currents into semiconductors)

IT 1303-00-0, Gallium arsenide, uses 1303-11-3, Indium arsenide, uses  
 1306-23-6, Cadmium sulfide, uses 1306-24-7, Cadmium selenide, uses  
 1306-25-8, Cadmium telluride, uses 1312-41-0, Indium antimonide  
**1314-98-3**, Zinc sulfide, uses 1315-09-9, Zinc selenide  
 1315-11-3, Zinc telluride 7440-02-0, Nickel, uses 7440-21-3,  
 Silicon, uses 7440-27-9, Terbium, uses 7440-48-4, Cobalt, uses  
 7440-54-2, Gadolinium, uses 7440-56-4, Germanium, uses  
**7681-65-4**, Copper iodide (CuI) 7758-89-6, Copper  
 chloride (CuCl) 7787-70-4, Copper bromide (CuBr) 10043-11-5,  
 Boron nitride, uses 12003-70-2, AlMn 12013-10-4, Cobalt  
 disulfide 12042-17-0, AlFe 12063-98-8, Gallium phosphide, uses  
 12064-03-8, Gallium antimonide 20859-73-8, Aluminum phosphide  
 22398-80-7, Indium phosphide, uses 22831-42-1, Aluminum arsenide  
 25152-52-7, Aluminum antimonide  
 (spintronic devices and method for injecting  
 spin-polarized elec. currents into semiconductors)

L77 ANSWER 9 OF 42 HCA COPYRIGHT 2005 ACS on STN

135:341136 Preparation of luminescent-doped inorganic nanoparticles and usage as labels for biomolecule probes. Hoheisel, Werner; Petry, Christoph; Bohmann, Kerstin; Haase, Markus; Riwotzki, Karsten (Bayer A.-G., Germany). Ger. Offen. DE 10106643 A1 20011108, 12 pp. (German). CODEN: GWXXBX. APPLICATION: DE 2001-10106643 20010212. PRIORITY: DE 2000-10021674 20000505.

AB The invention concerns luminescent-doped inorg. nanoparticles that are used as labels for affinity mols. e.g. nucleic acids, antibodies, proteins, etc.; affinity mols. are directly attached to the nanoparticles or via linker groups, e.g. thiols, amines, imidazoles, mol. self-assemblies, etc. Thus europium-doped phosphoric acid, lanthanum(3+) salt (1:1) was prep'd. by a previously described wet chem. method; the obtained milky dispersion was centrifuged, dialyzed and dried to obtain the desired particle size. The LaPO<sub>4</sub>:Eu nanoparticles were coated with silica using a basic sodium water glass soln.; sepd. by ethanol pptn., centrifugation, ultrasound dispersion, decanting and drying. The silica coated nanoparticles were amine-activated with 3-aminopropyltriethoxysilane and treated with sulfosuccinimidyl 4-(N-maleimidomethyl)cyclohexane-1-carboxylate (sulfo-SMCC) crosslinker. Antibodies to .alpha.-actin were thiol-activated in a 2-iminothiolane soln. and incubated with the treated luminescent-doped inorg. nanoparticles; the obtained luminescent probes were used to visualize actin filaments in rabbit muscles by confocal **laser** scanning microscopy.

IT **1314-98-3**, Zinc sulfide (ZnS), uses  
 (Ag, Al, Cu, Mn, Tb, TbF<sub>3</sub>, Eu, EuF<sub>3</sub>, lanthanide doped; prepn. of luminescent-doped inorg. nanoparticles and usage as labels for biomol. probes)

RN 1314-98-3 HCA

CN Zinc sulfide (ZnS) (9CI) (CA INDEX NAME)

S—Zn

IT 7681-82-5, Sodium iodide (**NaI**), uses  
 (Tl-doped; prepn. of luminescent-doped inorg. nanoparticles and usage as labels for biomol. probes)

RN 7681-82-5 HCA

CN Sodium iodide (**NaI**) (9CI) (CA INDEX NAME)

I—Na

IC ICM G01N033-52  
 ICS G01N033-58; C12Q001-00; C12Q001-68  
 CC 9-1 (Biochemical Methods)  
 Section cross-reference(s): 73

IT 1314-98-3, Zinc sulfide (**ZnS**), uses  
 (Ag, Al, Cu, Mn, Tb, TbF<sub>3</sub>, Eu, EuF<sub>3</sub>, lanthanide doped; prepn. of luminescent-doped inorg. nanoparticles and usage as labels for biomol. probes)

IT 7681-82-5, Sodium iodide (**NaI**), uses  
 (Tl-doped; prepn. of luminescent-doped inorg. nanoparticles and usage as labels for biomol. probes)

IT 13708-63-9, Terbium fluoride (TbF<sub>3</sub>) 13765-25-8, Europium fluoride (EuF<sub>3</sub>)  
 (with **ZnS**; prepn. of luminescent-doped inorg. nanoparticles and usage as labels for biomol. probes)

L77 ANSWER 10 OF 42 HCA COPYRIGHT 2005 ACS on STN

134:356531 Low temperature joining of materials. Conzone, Samuel D.; Hayden, Joseph S.; Marker, Alexander J., III (Schott Glass Technologies, Inc., USA). PCT Int. Appl. WO 2001032580 A2 20010510, 83 pp. DESIGNATED STATES: W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM; RW: AT, BE, BF, BJ, CF, CG, CH, CI, CM, CY, DE, DK, ES, FI, FR, GA, GB, GR, IE, IT, LU, MC, ML, MR, NE, NL, PT, SE, SN, TD, TG, TR. (English). CODEN: PIXXD2. APPLICATION: WO 2000-US41721 20001101. PRIORITY: US 1999-430885 19991101.

AB Methods for the low temp. joining of similar and/or dissimilar materials (crystals, glasses, and metallic coatings) are described which entail mating the materials at low temp. with an inorg., aq. soln. contg. phosphorus. A rigid condensed phosphate phase is formed at the interface which has low birefringence, is strong, and

is virtually photonically invisible. Composites formed by the methods are also described. The materials intended for joining may be polished, cleaned, and brought together with the phosphorus-contg. soln. between the polished surfaces. Vacuum may be applied to assist in making the joint. the composite is optionally heat treated to increase strength, chem. durability, and optical performance. The joints allow for the fabrication of hybrid photonic devices (e.g. **laser** arrays, self-cooling **lasers**, and beam splitters) by a low temp. inorg. joining process.

IT 1314-98-3, Zinc sulfide, processes 7681-11-0,  
Potassium iodide, processes  
(low temp. joining of materials by phosphate phase formation and  
composites formed by the joining methods)

RN 1314-98-3 HCA

CN Zinc sulfide (ZnS) (9CI) (CA INDEX NAME)

S==Zn

RN 7681-11-0 HCA  
CN Potassium iodide (KI) (8CI, 9CI) (CA INDEX NAME)

I-K

IC ICM C03C027-06  
CC 57-1 (Ceramics)  
Section cross-reference(s): 73

IT Composites  
Joining  
Optical beam splitters  
Solid state **lasers**

(low temp. joining of materials by phosphate phase formation and  
composites formed by the joining methods)

IT 1303-00-0, Gallium arsenide, processes 1303-33-9, Arsenic sulfide  
(As<sub>2</sub>S<sub>3</sub>) 1314-98-3, Zinc sulfide, processes 1315-09-9,  
Zinc selenide 1315-11-3, Zinc telluride 1344-28-1, Aluminum  
oxide, processes 7440-21-3, Silicon, processes 7440-56-4,  
Germanium, processes 7647-14-5, Sodium chloride, processes  
7681-11-0, Potassium iodide, processes 7783-90-6, Silver  
chloride, processes 7785-23-1, Silver bromide 7789-24-4, Lithium  
fluoride, processes 7789-75-5, Calcium fluoride, processes  
12031-63-9, Lithium niobate 22398-80-7, Indium phosphide,  
processes

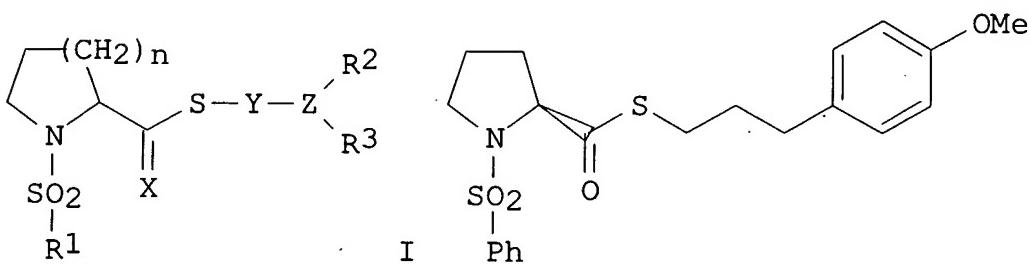
(low temp. joining of materials by phosphate phase formation and  
composites formed by the joining methods)

L77 ANSWER 11 OF 42 HCA COPYRIGHT 2005 ACS on STN

133:237855 Preparation of N-linked sulfonamides of heterocyclic thioesters as inhibitors of rotamase enzyme activity.

Hamilton, Gregory S.; Li, Jai-He; Huang, Wei (GPI Nil Holdings, Inc, USA). U.S. US 6121273 A 20000919, 18 pp., Cont.-in-part of U.S. 5,874,449. (English). CODEN: USXXAM. APPLICATION: US 1997-996342 19971222. PRIORITY: US 1996-775584 19961231.

GI



AB This invention relates to the prepn. of neurotrophic low mol. wt., small mol. N-linked sulfonamides of heterocyclic **thioesters** (I) [wherein n = 1-3; X = O or S; Y, Z, R<sub>2</sub>, and R<sub>3</sub> = independently a direct bond or (un)substituted straight or branched chain alkyl or alkenyl, wherein any of the C atoms are optionally replaced with O, NH, S, SO, or SO<sub>2</sub>, etc.; R<sub>1</sub> = aryl, cycloalkyl, or (un)substituted alkyl or alkenyl, etc.] having an affinity for FKBP-type immunophilins, and their use as inhibitors of the enzyme activity assoc'd. with immunophilin proteins, particularly peptidyl-prolyl isomerase (rotamase) enzyme activity. For example, II was formed by (1) reaction of N-(tert-butoxycarbonyl)-(S)-proline with 3-(4-methoxyphenyl)-1-propylmercaptan (prepn. given) in the presence of 1-(3-dimethylaminopropyl)-3-ethylcarbodiimide.bul.HCl and 4-dimethylaminopyridine in CH<sub>2</sub>Cl<sub>2</sub>, (2) deprotection of the pyrrolidinecarbothiolate using TFA, and (3) addn. of benzenesulfonyl chloride. I inhibited rotamase activity with **K<sub>i</sub>** values ranging from 22 nM to 984 nM and stimulated neurite outgrowth in an embryonic chick dorsal root ganglion bioassay with ED<sub>50</sub> values of < 1 nM to 200 nM. In an MPTP model of Parkinson's disease, selected I reversed MPTP induced loss of functional dopaminergic terminals, showing 37% to 80% recovery of tyrosine hydroxylase (TH)-pos. dopaminergic neurons in the striata of CD1 white mice. I are useful for stimulating damaged neurons caused by phys. injury to the brain or **spinal** cord, stroke, or neurodegenerative disorders, such as Alzheimer's disease, Parkinson's disease, or amyotrophic lateral sclerosis.

IC ICM A61K031-435

NCL ICS A61K031-40; C07D211-96; C07D213-89  
514277000

CC 27-10 (Heterocyclic Compounds (One Hetero Atom))  
Section cross-reference(s): 1, 34

ST arylalkyl arylsulfonylpyrrolidinecarbothioate prepn rotamase inhibitor; arylsulfonylpyrrolidinecarbothioate arylalkyl prepn peptidyl prolyl isomerase inhibitor; pyrrolidinecarbothioate arylalkyl prepn neurodegenerative disorder treatment; heterocyclic **thioester** sulfonamide prepn immunophilin inhibitor

IT Proteins, specific or class  
(FKBP (FK 506-binding protein); prepn. of N-linked sulfonamides of heterocyclic **thioesters** as rotamase inhibitors by reaction of mercaptans with .alpha.-carboxyheterocycles followed by N-sulfonylation)

IT Proteins, specific or class  
(FKBP-12 (FK 506-binding protein, 12,000-mol.-wt.); prepn. of N-linked sulfonamides of heterocyclic **thioesters** as rotamase inhibitors by reaction of mercaptans with .alpha.-carboxyheterocycles followed by N-sulfonylation)

IT Nervous system  
(amyotrophic lateral sclerosis, treatment; prepn. of N-linked sulfonamides of heterocyclic **thioesters** as rotamase inhibitors by reaction of mercaptans with .alpha.-carboxyheterocycles followed by N-sulfonylation)

IT Nervous system  
(degeneration, treatment; prepn. of N-linked sulfonamides of heterocyclic **thioesters** as rotamase inhibitors by reaction of mercaptans with .alpha.-carboxyheterocycles followed by N-sulfonylation)

IT Brain, disease  
**Spinal cord**  
(injury, treatment; prepn. of N-linked sulfonamides of heterocyclic **thioesters** as rotamase inhibitors by reaction of mercaptans with .alpha.-carboxyheterocycles followed by N-sulfonylation)

IT Anti-Alzheimer's agents  
Antiparkinsonian agents  
(prepn. of N-linked sulfonamides of heterocyclic **thioesters** as rotamase inhibitors by reaction of mercaptans with .alpha.-carboxyheterocycles followed by N-sulfonylation)

IT Immunophilins  
(prepn. of N-linked sulfonamides of heterocyclic **thioesters** as rotamase inhibitors by reaction of mercaptans with .alpha.-carboxyheterocycles followed by N-sulfonylation)

IT Brain, disease  
(stroke, treatment; prepn. of N-linked sulfonamides of

heterocyclic **thioesters** as rotamase inhibitors by reaction of mercaptans with .alpha.-carboxyheterocycles followed by N-sulfonylation)

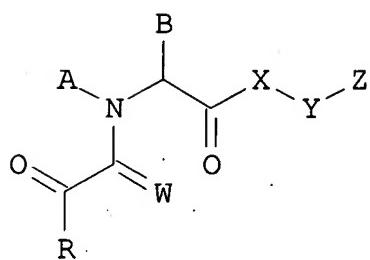
- IT 210048-11-6P 210048-12-7P 210048-13-8P 210048-17-2P  
 210048-18-3P 210048-19-4P 210048-20-7P 210048-21-8P  
 210048-22-9P 210048-23-0P 210048-24-1P 210048-25-2P  
 210048-26-3P 210048-27-4P 210048-29-6P 210048-30-9P  
 210048-32-1P 210048-33-2P 210048-34-3P 210048-35-4P  
 210048-36-5P 222171-24-6P 222171-27-9P 222171-29-1P  
 222171-31-5P 292863-44-6P 292863-45-7P 292863-47-9P  
 292863-49-1P  
 (prepn. of N-linked sulfonamides of heterocyclic **thioesters** as rotamase inhibitors by reaction of mercaptans with .alpha.-carboxyheterocycles followed by N-sulfonylation)
- IT 9036-22-0, Tyrosine hydroxylase 95076-93-0, Rotamase (prepn. of N-linked sulfonamides of heterocyclic **thioesters** as rotamase inhibitors by reaction of mercaptans with .alpha.-carboxyheterocycles followed by N-sulfonylation)
- IT 28289-54-5, MPTP (prepn. of N-linked sulfonamides of heterocyclic **thioesters** as rotamase inhibitors by reaction of mercaptans with .alpha.-carboxyheterocycles followed by N-sulfonylation)
- IT 98-09-9, Benzenesulfonyl chloride 98-59-9, (4-Methylphenyl)sulfonyl chloride 1939-99-7, Benzylsulfonyl chloride 5406-18-8, 3-(4-Methoxyphenyl)-1-propanol 15761-39-4, N-(tert-Butoxycarbonyl)-(S)-proline (prepn. of N-linked sulfonamides of heterocyclic **thioesters** as rotamase inhibitors by reaction of mercaptans with .alpha.-carboxyheterocycles followed by N-sulfonylation)
- IT 57293-19-3P, 3-(4-Methoxyphenyl)-1-propyl bromide 88537-44-4P, 3-(4-Methoxyphenyl)-1-propyl mercaptan 210048-37-6P 210048-38-7P (prepn. of N-linked sulfonamides of heterocyclic **thioesters** as rotamase inhibitors by reaction of mercaptans with .alpha.-carboxyheterocycles followed by N-sulfonylation)

L77 ANSWER 12 OF 42 HCA COPYRIGHT 2005 ACS on STN

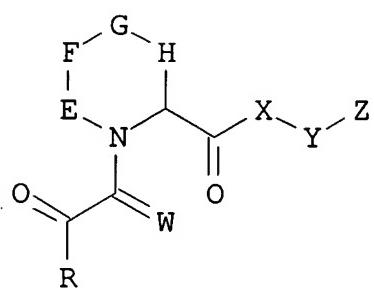
129:230649 Preparation of N-oxides of heterocyclic esters, amides, **thioesters**, and ketones as inhibitors of the enzyme activity assocd. with immunophilin proteins. Hamilton, Gregory S.; Steiner, Joseph P.; Burak, Eric S. (Guilford Pharmaceuticals Inc., USA). PCT Int. Appl. WO 9837885 A1 19980903, 67 pp. DESIGNATED STATES: W: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, GM, GW, HU, ID, IL, IS, JP, KE, KG, KP, KR,

KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, UZ, VN, YU, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM; RW: AT, BE, BF, BJ, CF, CG, CH, CI, CM, DE, DK, ES, FI, FR, GA, GB, GR, IE, IT, LU, MC, ML, MR, NE, NL, PT, SE, SN, TD, TG. (English). CODEN: PIXXD2.  
APPLICATION: WO 1998-US3484 19980226. PRIORITY: US 1997-807406 19970228.

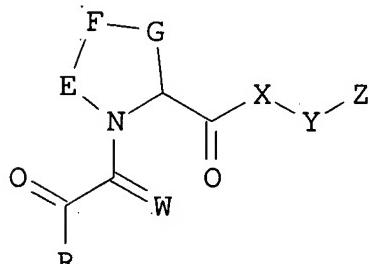
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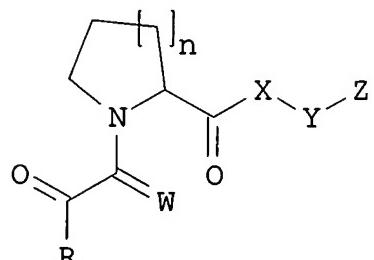
I



II



III



IV

AB The title compds. [I-IV; A and B, together with N and C atoms to which they are attached, = (un)satd. 5-7 membered heterocyclyl; E, F, G and H = CH<sub>2</sub>, O, S, etc.; W = O, S, CH<sub>2</sub>, H<sub>2</sub>; R = C<sub>1-6</sub> alkyl, C<sub>1-6</sub> alkenyl, etc.; X = O, NH, S, etc.; Y = a direct bond, C<sub>1-6</sub> alkyl, C<sub>1-6</sub> alkenyl, etc.; Z = an arom. or tertiary alkyl amine oxidized to a corresponding N-oxide; n = 1-3], having an affinity for FKBP-type immunophilins, and therefore useful as inhibitors of the enzyme activity assoc'd. with immunophilin proteins, particularly peptidyl-prolyl isomerase, or rotamase activity, were prep'd. Thus, 5-step synthesis of (S)-IV [X = O; Y = (CH<sub>2</sub>)<sub>3</sub>; Z = 3-pyridyl N-oxide; R = 1,1-dimethylpentyl; n = 1], which showed **Ki** of 225 nM against esterase degrdn., is described.

IC ICM A61K031-40  
ICS A61K031-44; A61K031-47; C07D207-08; C07D207-09; C07D213-89;  
C07D215-60

CC 27-17 (Heterocyclic Compounds (One Hetero Atom))  
Section cross-reference(s): 1

ST heterocyclic ester amide prepn rotamase inhibitor; FKBP protein  
heterocyclic ester amide prepn; neurodegeneration prevention  
heterocyclic ester amide prepn; neurol disorder heterocyclic ester  
amide prepn; peripheral neuropathy heterocyclic ester amide prepn;  
brain injury heterocyclic ester amide prepn; spinal cord  
injury heterocyclic ester prepn; stroke heterocyclic ester amide  
ketone prepn; Alzheimer disease heterocyclic ester amide prepn;  
Parkinson disease heterocyclic ester amide prepn; amyotrophic  
lateral sclerosis heterocyclic ester prepn

IT Proteins, specific or class  
(FKBP-12 (FK 506-binding protein, 12,000-mol.-wt.); prepn. of  
N-oxides of heterocyclic esters, amides, **thioesters**,  
and ketones as inhibitors of enzyme activity assocd. with  
immunophilin proteins)

IT Nervous system  
(amyotrophic lateral sclerosis, treatment of; prepn. of N-oxides  
of heterocyclic esters, amides, **thioesters**, and ketones  
as inhibitors of enzyme activity assocd. with immunophilin  
proteins)

IT Nerve  
(degeneration, prevention of; prepn. of N-oxides of heterocyclic  
esters, amides, **thioesters**, and ketones as inhibitors  
of enzyme activity assocd. with immunophilin proteins)

IT Nervous system  
(disease, treatment of; prepn. of N-oxides of heterocyclic  
esters, amides, **thioesters**, and ketones as inhibitors  
of enzyme activity assocd. with immunophilin proteins)

IT Brain, disease  
**Spinal cord**  
(injury, treatment of; prepn. of N-oxides of heterocyclic esters,  
amides, **thioesters**, and ketones as inhibitors of enzyme  
activity assocd. with immunophilin proteins)

IT Nerve, disease  
(peripheral neuropathy, treatment of; prepn. of N-oxides of  
heterocyclic esters, amides, **thioesters**, and ketones as  
inhibitors of enzyme activity assocd. with immunophilin proteins)

IT Brain, disease  
(stroke, treatment of; prepn. of N-oxides of heterocyclic esters,  
amides, **thioesters**, and ketones as inhibitors of enzyme  
activity assocd. with immunophilin proteins)

IT Alzheimer's disease  
Parkinson's disease  
(treatment of; prepn. of N-oxides of heterocyclic esters, amides,

- thioesters, and ketones as inhibitors of enzyme activity  
assocd. with immunophilin proteins)
- IT 212762-79-3P 212762-80-6P 212762-81-7P 212762-82-8P  
212762-83-9P 212762-84-0P  
(prepn. of N-oxides of heterocyclic esters, amides,  
**thioesters**, and ketones as inhibitors of enzyme activity  
assocd. with immunophilin proteins)
- IT 95076-93-0, Rotamase  
(prepn. of N-oxides of heterocyclic esters, amides,  
**thioesters**, and ketones as inhibitors of enzyme activity  
assocd. with immunophilin proteins)
- IT 2133-40-6, L-Proline methyl ester hydrochloride 2859-67-8,  
3-Pyridinepropanol 5781-53-3, Methyl oxalyl chloride 28276-08-6,  
1,1-Dimethylpropylmagnesium chloride  
(prepn. of N-oxides of heterocyclic esters, amides,  
**thioesters**, and ketones as inhibitors of enzyme activity  
assocd. with immunophilin proteins)
- IT 139419-63-9P 186268-77-9P 186268-78-0P 186452-09-5P  
(prepn. of N-oxides of heterocyclic esters, amides,  
**thioesters**, and ketones as inhibitors of enzyme activity  
assocd. with immunophilin proteins)

L77 ANSWER 13 OF 42 HCA COPYRIGHT 2005 ACS on STN

127:2382 Benzoyl-CoA reductase (dearomatizing), a key enzyme of anaerobic aromatic metabolism. A study of adenosine triphosphatase activity, ATP stoichiometry of the reaction, and EPR properties of the enzyme. Boll, Matthias; Albracht, Simon S. P.; Fuchs, Georg (Institut Biologie II, Universitat Freiburg, Freiburg/Br., D-79104, Germany). European Journal of Biochemistry, 244(3), 840-851 (English) 1997. CODEN: EJBCAI. ISSN: 0014-2956. Publisher: Springer.

AB Benzoyl-CoA reductase (dearomatizing) (I), which catalyzes the ATP-driven redn. of the arom. ring of benzoyl-CoA yielding a nonarom. CoA **thioester**, ADP, and phosphate, was recently described. The 170-kDa enzyme consists of 4 different subunits and contains .apprx.12 Fe and acid-labile S atoms/mol. I exhibits ATPase activity in the absence of substrate. Here, it is shown that only the reduced form of this Fe-S protein has ATPase activity. The ATPase activity is reversibly lost when the enzyme is oxidized by thionine; redn. of the enzyme fully restores ATPase and ring-redn. activity. 2 Mol ATP are hydrolyzed and 2 mol electrons transferred in the course of the reaction. The product, ADP, acts as competitive inhibitor ( $K_i = 1.1 \text{ mM}$ ) for ATP in benzoyl-CoA redn.; ADP inhibits ATPase activity to the same extent as ring-redn. activity. EPR investigation of the dithionite-reduced enzyme suggested the presence of 2 sep. [2Fe-2S] clusters and 2 interacting [4Fe-4S] clusters. The addn. of MgATP to the reduced enzyme resulted in a new isotropic signal at  $g = 5.15$  and a weak signal at

$g = 12$ ; in controls with MgADP only a minor signal at  $g = 5.15$  was obsd. The positions, shapes, and temp. dependencies of these MgATP-induced signals were indicative for excited states of a  $S = 7/2$  spin multiplet. The [2Fe-2S] signals were not affected by ATP, but one of the [4Fe-4S] clusters became slowly oxidized. The addn. of both benzoyl-CoA and MgATP resulted in a major oxidn. of the Fe-S clusters accompanied by the appearance of some minor signals of unknown origin in the  $g = 2.037-1.96$  region. Neither the benzoyl-CoA plus MgATP-oxidized nor the thionine-oxidized enzyme showed the ATP-dependent formation of the high-spin signals of the reduced enzyme. It was hypothesized that the  $S = 7/2$  signal is due to an ATP-induced change of one of the [4Fe-4S] clusters. The results suggest that hydrolysis of MgATP is required to activate the enzyme; in the absence of substrate, the energy involved in this activation dissipates. MgATP-driven formation of this excited state of the reduced enzyme rather than transfer of electrons from the reduced enzyme to the arom. substrate appears to be the rate-limiting step in the catalytic cycle. It is suggested that the excited state is required to overcome the high activation energy assocd. with the loss of the arom. character and/or to render ring redn. irreversible.

CC 7-3 (Enzymes)

L77 ANSWER 14 OF 42 HCA COPYRIGHT 2005 ACS on STN

126:150350 Electron Spin Resonance Study of Radicals Produced by Photoirradiation on Quantized and Bulk ZnS Particles.

Nakaoka, Yasuhiro; Nosaka, Yoshio (Department of Chemistry, Nagaoka University of Technology, Nagaoka, 940-21, Japan). Langmuir, 13(4), 708-713 (English) 1997. CODEN: LANGD5. ISSN: 0743-7463.

Publisher: American Chemical Society.

AB Quantized ZnS particles were prep'd. and isolated from aq. soln. with a capping agent, thioglycerol. The absorption peak of the particles was located at 259-260 nm, and the diam. was estd. to be 1.5-1.6 nm from X-ray diffractograms. Their excitation energy agrees well with that calcd. with the finite depth potential well model. ESR spectra were measured for the quantized and bulk ZnS particles at 77 K under photoirradn. For the quantized ZnS, only surface hole radicals were obsd., while several kinds of radicals consisting of trapped electron, inner, and surface holes were obsd. for the bulk ZnS. A high activity of photocatalytic reactions for quantized semiconductor particles may arise from a large no. of radicals photoproduced at the surface.

IT 1314-98-3, Zinc sulfide (ZnS), uses  
(ESR study of radicals produced by photoirradn. on quantized and bulk ZnS particles)

RN 1314-98-3 HCA

CN Zinc sulfide (ZnS) (9CI) (CA INDEX NAME)

S—Zn

IT 7681-82-5, Sodium iodide, processes  
(hole scavenger; ESR detection of surface radicals by  
photoirradn. of quantized and bulk ZnS particles in  
methanol soln. of NaI)  
RN 7681-82-5 HCA  
CN Sodium iodide (NaI) (9CI) (CA INDEX NAME)

I—Na

CC 74-1 (Radiation Chemistry, Photochemistry, and Photographic and  
Other Reprographic Processes)  
Section cross-reference(s): 67, 77  
IT Hole (electron)  
(ESR detection of surface hole radicals in photoirradn. of  
quantized ZnS particles)  
IT ESR (electron spin resonance)  
Photolysis  
(ESR study of radicals produced by photoirradn. on quantized and  
bulk ZnS particles)  
IT Radicals, properties  
(ESR study of radicals produced by photoirradn. on quantized and  
bulk ZnS particles)  
IT Simulation and Modeling, physicochemical  
(computer simulation of ESR spectrum for irradiated bulk  
ZnS powder)  
IT Catalysts  
(photochem.; photocatalytic activity of quantized and bulk  
ZnS particles)  
IT 183748-02-9, Electron  
(ESR detection of trapped electron in photoirradn. of bulk  
ZnS particles)  
IT 1314-98-3, Zinc sulfide (ZnS), uses  
(ESR study of radicals produced by photoirradn. on quantized and  
bulk ZnS particles)  
IT 1313-82-2, Sodium sulfide (Na<sub>2</sub>S), uses 7646-85-7, Zinc chloride  
(ZnCl<sub>2</sub>), uses  
(ESR study of radicals produced by photoirradn. on quantized and  
bulk ZnS particles)  
IT 67-56-1, Methanol, processes  
(electron donor; ESR detection of surface radicals by  
photoirradn. of quantized and bulk ZnS particles in  
methanol soln. of NaI)  
IT 7681-82-5, Sodium iodide, processes 20461-54-5, Iodide,

## processes

(hole scavenger; ESR detection of surface radicals by photoirradn. of quantized and bulk ZnS particles in methanol soln. of NaI)

IT 96-27-5, 1-Thioglycerol  
(quantized ZnS particles prepd. and isolated from aq. soln. with capping agent thioglycerol)

L77 ANSWER 15 OF 42 HCA COPYRIGHT 2005 ACS on STN

123:106743 Heat-fixable high energy radiation imaging film. Patel, Gordhanbai N.; Cheng, Yao Ming; Patel, Subhash H. (JP Laboratories, Inc., USA). U.S. ~~US~~ 5420000 A 19950530, 31 pp. Cont.-in-part of U.S. Ser. No. 970,986, abandoned. (English). CODEN: USXXAM. APPLICATION: US 1993-106131 19930812. PRIORITY: US 1990-506273 19900409; US 1990-506272 19900409; US 1992-973192 19921102; US 1992-970986 19921102.

AB Described is a radiation sensitive imaging film contg. a heat fixable radiation sensitive element, e.g., a diacetylene, of the formula: RC.tplbond.CC.tplbond.CR', (R, R' = e.g. both CH<sub>2</sub>OC(O)NH(CH<sub>2</sub>)<sub>5</sub>CH<sub>3</sub>). After exposure to X-radiation during diagnostic or X-ray therapy, the resulting image can be permanently dry fixed by a short heating step and then stored for a long period. Processes for making the film, new binder-converter systems, and a device incorporating the film are described as well as other imaging, diagnostic and therapeutic methods utilizing the film in high energy radiation applications in the health care field. Schematic cross-sections of the film device of the invention are included. Imaging of body phantoms is described, as are use in nondestructive testing of industrial parts and use as security inks.

IT 7681-11-0, Potassium iodide, biological studies

7681-82-5, Sodium iodide, biological studies

(converter; heat-fixable high energy radiation imaging films and their prepn.)

RN 7681-11-0 HCA

CN Potassium iodide (KI) (8CI, 9CI) (CA INDEX NAME)

I-K

RN 7681-82-5 HCA

CN Sodium iodide (NaI) (9CI) (CA INDEX NAME)

I-Na

IT 1314-98-3, Zinc sulfide, biological studies

(converter; heat-fixable high energy radiation imaging films and their prepn.)

RN 1314-98-3 HCA  
CN Zinc sulfide (ZnS) (9CI) (CA INDEX NAME)

S—Zn

IT 7681-82-5DP, Sodium iodide, Polyethyleneimine complexes  
(heat-fixable high energy radiation imaging films and their  
prepn.)  
RN 7681-82-5 HCA  
CN Sodium iodide (NaI) (9CI) (CA INDEX NAME)

I—Na

IT 7681-11-0D, Potassium iodide, complexes with polyacrylic  
acid  
(heat-fixable high energy radiation imaging films and their  
prepn.)  
RN 7681-11-0 HCA  
CN Potassium iodide (KI) (8CI, 9CI) (CA INDEX NAME)

I—K

IC ICM G03C001-73  
NCL 430332000  
CC 8-9 (Radiation Biochemistry)  
Section cross-reference(s): 42, 47, 74  
IT Lasers  
(UV, heat-fixable high energy radiation imaging films and their  
prepn.)  
IT 1314-13-2, Zinc oxide, biological studies 7601-54-9, Trisodium  
phosphate 7681-11-0, Potassium iodide, biological studies  
7681-82-5, Sodium iodide, biological studies 7699-45-8,  
Zinc bromide 7727-43-7, Barium sulfate 7733-02-0, Zinc sulfate  
7758-02-3, Potassium bromide, biological studies 7783-03-1,  
Tungstic acid 7786-30-3, Magnesium chloride, biological studies  
7787-69-1, Cesium bromide 7789-17-5, Cesium iodide 10101-63-0,  
Lead iodide 10139-47-6, Zinc iodide 10361-37-2, Barium chloride,  
biological studies 10553-31-8, Barium bromide 13718-50-8, Barium  
iodide 37349-59-0, Tin iodide  
(converter; heat-fixable high energy radiation imaging films and  
their prepn.)  
IT 1314-98-3, Zinc sulfide, biological studies 7439-89-6D,  
Iron, salts and alloys 7439-91-0D, Lanthanum, salts and alloys  
7439-92-1, Lead, biological studies 7439-92-1D, Lead, salts and  
alloys 7439-95-4D, Magnesium, salts and alloys 7439-96-5D,

Manganese, salts and alloys 7439-97-6D, Mercury, salts and alloys 7439-98-7D, Molybdenum, salts and alloys 7440-02-0D, Nickel, salts and alloys 7440-05-3D, Palladium, salts and alloys 7440-06-4D, Platinum, salts and alloys 7440-09-7D, Potassium, salts and alloys 7440-18-8D, Ruthenium, salts and alloys 7440-22-4D, Silver, salts and alloys 7440-23-5D, Sodium, salts and alloys 7440-31-5D, Tin, salts and alloys 7440-32-6D, Titanium, salts and alloys 7440-33-7D, Tungsten, salts and alloys 7440-36-0D, Antimony, salts and alloys 7440-39-3, Barium, biological studies 7440-39-3D, Barium, salts and alloys 7440-43-9D, Cadmium, salts and alloys 7440-46-2D, Cesium, salts and alloys 7440-47-3D, Chromium, salts and alloys 7440-48-4D, Cobalt, salts and alloys 7440-50-8D, Copper, salts and alloys 7440-57-5D, Gold, salts and alloys 7440-61-1D, Uranium, salts and alloys 7440-66-6D, Zinc, salts and alloys 7440-67-7D, Zirconium, salts and alloys 7440-69-9D, Bismuth, salts and alloys 7440-74-6D, Indium, salts and alloys 7553-56-2D, Iodine, salts and alloys 7646-85-7, Zinc chloride, biological studies 12138-50-0 12340-04-4, Yttrium oxide sulfide (Y<sub>2</sub>O<sub>2</sub>S) 19299-00-4

(converter; heat-fixable high energy radiation imaging films and their prepns.)

IT 1314-13-2DP, Zinc oxide, Polyethyleneimine complexes 7647-01-0DP, Hydrochloric acid, Polyethyleneimine complexes 7664-38-2DP, Phosphoric acid, Polyethyleneimine complexes 7664-93-9DP, Sulfuric acid, Polyethyleneimine complexes **7681-82-5DP**, Sodium iodide, Polyethyleneimine complexes 7733-02-0DP, Zinc sulfate, Polyethyleneimine complexes 7787-69-1DP, Cesium bromide, Polyethyleneimine complexes 7789-17-5DP, Cesium iodide, Polyethyleneimine complexes 10034-85-2DP, Hydroiodic acid, Polyethyleneimine complexes 10101-63-0DP, Lead iodide, Polyethyleneimine complexes 10139-47-6DP, Zinc iodide, Polyethyleneimine complexes 10553-31-8DP, Barium bromide, Polyethyleneimine complexes 13718-50-8DP, Barium iodide, Polyethyleneimine complexes 165742-73-4P

(heat-fixable high energy radiation imaging films and their prepns.)

IT 79-09-4, Propionic acid, biological studies 142-72-3D, Magnesium acetate, complexes with polyacrylic acid 1344-13-4D, Tin chloride, gelatin complexes 7646-85-7D, Zinc chloride, gelatin complexes **7681-11-0D**, Potassium iodide, complexes with polyacrylic acid 7699-45-8D, Zinc bromide, gelatin complexes 9003-01-4D, Polyacrylic acid, complexes with inorg. compds. 9003-20-7, Polyvinylacetate 9011-15-8, Poly(iso-butylmethacrylate) 25038-59-9, Mylar, biological studies 37349-59-0D, Tin iodide, gelatin complexes 39340-18-6, Cronar 115325-05-8 165742-71-2 165742-72-3

(heat-fixable high energy radiation imaging films and their prepns.)

L77 ANSWER 16 OF 42 HCA COPYRIGHT 2005 ACS on STN

112:9499 Method for lowering electric resistivity of zinc sulfide.

Hatsuta, Masakazu; Niihama, Masatoshi; Takada, Yoshinori; Akyama, Yasuhiro (Seitetsu Kagaku Co., Ltd., Japan; NEC Corp.). Jpn. Kokai Tokkyo Koho JP 01133938 A2 19890526 Heisei, 4 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1987-293822 19871119.

AB ZnS is mixed with 0.01-10 wt.% .gtoreq.1 Group IV element compds. and/or Group V element compds. and fired to lower its elec. resistivity. In firing, S and a flux (preferably NaI or KI) are added. The Group IV element compds. are preferably SiO<sub>2</sub>, silicic acid, or Na, K, Mg, Ca, Zn, or Al silicate. The Group V element compds. are preferably P<sub>2</sub>O<sub>5</sub>, HPO<sub>3</sub>, H<sub>3</sub>PO<sub>4</sub>, H<sub>4</sub>P<sub>2</sub>O<sub>7</sub>, or Na, K, Mg, Zn, or Al phosphate.

IT 1314-98-3, Zinc sulfide, properties  
(elec. resistivity of, lowering by firing with Group IV or V element compds.)

RN 1314-98-3 HCA

CN Zinc sulfide (ZnS) (9CI) (CA INDEX NAME)

S==Zn

IT 7681-11-0, Potassium iodide, uses and miscellaneous  
7681-82-5, Sodium iodide, uses and miscellaneous  
(zinc sulfide firing with, for lower elec. resistivity)

RN 7681-11-0 HCA

CN Potassium iodide (KI) (8CI, 9CI) (CA INDEX NAME)

I-K

RN 7681-82-5 HCA

CN Sodium iodide (NaI) (9CI) (CA INDEX NAME)

I-Na

IC ICM C01G009-08

CC 49-11 (Industrial Inorganic Chemicals)

IT Electric resistance

(of zinc sulfide, decrease by firing with phosphorus and silicon compds.)

IT 1314-98-3, Zinc sulfide, properties

(elec. resistivity of, lowering by firing with Group IV or V element compds.)

IT 1304-76-3, Bismuth trioxide, uses and miscellaneous 1312-76-1

1314-56-3, Phosphorus pentoxide, uses and miscellaneous 1335-30-4

1343-88-0 1343-98-2, Silicic acid 1344-09-8 1344-95-2  
 2466-09-3, Pyrophosphoric acid 7446-26-6, Zinc pyrophosphate  
 7558-79-4 7558-80-7, Sodium monobasic phosphate (NaH<sub>2</sub>PO<sub>4</sub>)  
 7631-86-9, Silica, uses and miscellaneous 7632-05-5, Sodium  
 phosphate 7664-38-2, Phosphoric acid, uses and miscellaneous  
 7681-11-0, Potassium iodide, uses and miscellaneous  
 7681-82-5, Sodium iodide, uses and miscellaneous  
 7704-34-9, Sulfur, uses and miscellaneous 7779-90-0, Zinc  
 phosphate 7784-30-7, Aluminum phosphate 10043-83-1, Magnesium  
 phosphate 10103-46-5, Calcium phosphate 10343-62-1,  
 Metaphosphoric acid 11126-29-7 16068-46-5, Potassium phosphate  
 18282-10-5, Tin oxide (SnO<sub>2</sub>)  
 (zinc sulfide firing with, for lower elec. resistivity)

L77 ANSWER 17 OF 42 HCA COPYRIGHT 2005 ACS on STN

111:203117 Calculation of standard entropies of alkali and alkaline earth metal compounds. Huang, Guosheng; Xu, Zhihong (Inst. Chem. Metall., Acad. Sin., Beijing, Peop. Rep. China). Jisuanji Yu Yingyong Huaxue, 4(3), 201-6 (Chinese) 1987. CODEN: JYYHE6. ISSN: 1001-4160.

AB By taking into account the effects of interaction between ions in compds., a new method is proposed for estn. of the std. entropies of alkali and alk. earth metal compds.: S<sub>0298</sub> = .SIGMA.  
 $Si + Sr \text{ and } Sr = (7 - n)/2m(3.19 - .\Delta.X)$  where Si is the entropies of ions, n is the principal quantum no. of cation, m is the bond no. and .\Delta.X is the difference of the values of at. electronegativity. Entropies of 65 compds. were calcd. and a good agreement between the calcd. and exptl. values was obtained.

IT 7681-11-0, Potassium iodide, properties 7681-82-5,  
 Sodium iodide, properties 21109-95-5, Barium sulfide  
 (entropy of, calcn. of)

RN 7681-11-0 HCA

CN Potassium iodide (KI) (8CI, 9CI) (CA INDEX NAME)

I-K -

RN 7681-82-5 HCA

CN Sodium iodide (NaI) (9CI) (CA INDEX NAME)

I-Na

RN 21109-95-5 HCA

CN Barium sulfide (BaS) (7CI, 9CI) (CA INDEX NAME)

Ba=S

CC 69-2 (Thermodynamics, Thermochemistry, and Thermal Properties)  
IT 1304-28-5, Barium oxide, properties 1304-39-8, Barium selenide  
1304-56-9, Beryllium oxide 1305-78-8, Calcium oxide, properties  
1305-84-6, Calcium selenide 1309-48-4, Magnesium oxide, properties  
1312-73-8, Potassium sulfide (K<sub>2</sub>S) 1313-04-8, Magnesium selenide  
1313-59-3, Sodium oxide (Na<sub>2</sub>O), properties 1313-82-2, Sodium  
sulfide (Na<sub>2</sub>S), properties 1314-11-0, Strontium oxide, properties  
1314-96-1, Strontium sulfide 7447-40-7, Potassium chloride,  
properties 7447-41-8, Lithium chloride, properties 7550-35-8,  
Lithium bromide 7647-14-5, Sodium chloride, properties  
7647-15-6, Sodium bromide, properties 7647-17-8, Cesium chloride,  
properties 7681-11-0, Potassium iodide, properties  
7681-49-4, Sodium fluoride, properties 7681-82-5, Sodium  
iodide, properties 7758-02-3, Potassium bromide, properties  
7783-40-6, Magnesium fluoride 7783-48-4, Strontium fluoride  
7786-30-3, Magnesium chloride, properties 7787-32-8, Barium  
fluoride 7787-46-4, Beryllium bromide 7787-47-5, Beryllium  
chloride 7787-49-7, Beryllium fluoride 7787-53-3, Beryllium  
iodide 7787-69-1, Cesium bromide 7789-17-5, Cesium iodide  
7789-23-3, Potassium fluoride 7789-24-4, Lithium fluoride,  
properties 7789-39-1, Rubidium bromide 7789-41-5, Calcium  
bromide 7789-48-2, Magnesium bromide 7789-75-5, Calcium  
fluoride, properties 7790-29-6, Rubidium iodide 7791-11-9,  
Rubidium chloride, properties 10043-52-4, Calcium chloride,  
properties 10102-68-8, Calcium iodide 10361-37-2, Barium  
chloride, properties 10377-51-2, Lithium iodide 10377-58-9,  
Magnesium iodide 10476-81-0, Strontium bromide 10476-85-4,  
Strontium chloride 10476-86-5, Strontium iodide 10553-31-8,  
Barium bromide 12009-36-8, Barium telluride 12013-57-9, Calcium  
telluride (CaTe) 12032-36-9, Magnesium sulfide 12057-24-8,  
Lithium oxide (Li<sub>2</sub>O), properties 12136-45-7, Potassium oxide  
(K<sub>2</sub>O), properties 12136-58-2, Lithium sulfide (Li<sub>2</sub>S) 12758-28-0,  
Dibromide ion(2-), properties 13400-13-0, Cesium fluoride  
13446-74-7, Rubidium fluoride 13598-22-6, Beryllium sulfide  
13718-50-8, Barium iodide 14127-61-8, Calcium ion(2+), properties  
16833-27-5, Oxide 16887-00-6, Chloride, properties 16984-48-8,  
Fluoride, properties 17341-24-1, Lithium ion(1+), properties  
17341-25-2, Sodium ion(1+), properties 18088-11-4, Rubidium oxide  
(Rb<sub>2</sub>O) 18459-37-5, Cesium ion(1+), properties 18496-25-8,  
Sulfide ion(2-) 20281-00-9, Cesium oxide (Cs<sub>2</sub>O) 20461-54-5,  
Iodide, properties 20548-54-3, Calcium sulfide 21109-95-5  
, Barium sulfide 22537-20-8, Beryllium ion(2+), properties  
22537-22-0, Magnesium ion(2+), properties 22537-38-8, Rubidium  
ion(1+), properties 22537-39-9, Strontium ion(2+), properties  
22541-12-4, Barium ion(2+), properties 22541-48-6, Selenide  
22541-49-7, Telluride 24203-36-9, Potassium ion(1+), properties  
24959-67-9, Bromide, properties 31083-74-6, Rubidium sulfide

(Rb<sub>2</sub>S) 81361-72-0, Difluoride ion(2-), properties 117458-08-9,  
 Diiodide ion(2-), properties 117458-09-0, Dichloride ion(2-),  
 properties  
 (entropy of, calcn. of)

- L77 ANSWER 18 OF 42 HCA COPYRIGHT 2005 ACS on STN  
 109:216244 Ab-initio determinations of semiconductor spin  
 -orbit splittings from ASW. Eppenga, R.; Schuurmans, M. F. H.;  
 Rompa, H. W. A. M. (Philips Res. Lab., Eindhoven, 5600 JA, Neth.).  
 Journal of Physics and Chemistry of Solids, 49(9), 1119-24 (English)  
 1988. CODEN: JPCSAW. ISSN: 0022-3697.  
 AB The spin-orbit splittings of the valence and conduction  
 bands at the .GAMMA., L and X symmetry points in the Brillouin zone  
 of a series of IV-IV, III-V, II-VI and I-VIII semiconductors can be  
 obtained accurately, to within 15%, from the Augmented Spherical  
 Wave (ASW) method. The expression required for the evaluation of  
 the matrix elements of the spin-orbit operator within the  
 ASW basis set is derived and discussed. The results imply that the  
 earlier exptl. assignment of .DELTA.0' for AlSb and InP should be  
 reconsidered.  
 IT 1314-98-3, Zinc sulfide, properties 7681-65-4,  
 Cuprous iodide  
 (spin-orbit splittings in, ab-initio detn. of)  
 RN 1314-98-3 HCA  
 CN Zinc sulfide (ZnS) (9CI) (CA INDEX NAME)

S—Zn

- RN 7681-65-4 HCA  
 CN Copper iodide (CuI) (8CI, 9CI) (CA INDEX NAME)

Cu—I

- CC 65-3 (General Physical Chemistry)  
 ST spin orbit splitting semiconductor  
 IT Energy level, band structure  
 (augmented spherical wave, in ab-initio detn. of semiconductor  
 spin-orbit splittings)  
 IT Semiconductor materials  
 (spin-orbit splittings in, ab-initio detn. of)  
 IT Spin, electronic  
 (-orbit splitting, of semiconductors, of ab-initio detn. of)  
 IT Energy level splitting  
 (spin-orbit, of semiconductors, ab-initio detn. of)  
 IT 1303-00-0, Gallium arsenide, properties 1303-11-3, Indium  
 arsenide, properties 1306-23-6, Cadmium sulfide, properties

1306-24-7, Cadmium selenide, properties 1306-25-8, Cadmium telluride, properties 1312-41-0, Indium antimonide, properties  
**1314-98-3**, Zinc sulfide, properties 1315-09-9, Zinc selenide 1315-11-3, Zinc telluride 1344-48-5, Mercury sulfide (HgS) 7440-21-3, Silicon, properties 7440-31-5, Tin, properties 7440-44-0, Carbon, properties 7440-56-4, Germanium, properties  
**7681-65-4**, Cuprous iodide 7758-89-6, Cuprous chloride 7783-90-6, Silver chloride, properties 7783-96-2, Silver iodide 7785-23-1, Silver bromide 7787-70-4, Cuprous bromide 12063-98-8, Gallium phosphide, properties 12064-03-8, Gallium antimonide 12068-90-5, Mercury telluride (HgTe) 20601-83-6, Mercury selenide (HgSe) 20859-73-8, Aluminum phosphide 22398-80-7, Indium phosphide, properties 22831-42-1, Aluminum arsenide 25152-52-7, Aluminum antimonide  
 (spin-orbit splittings in, ab-initio detn. of)

L77 ANSWER 19 OF 42 HCA COPYRIGHT 2005 ACS on STN  
 104:159039 UV Faraday rotator and its application on krypton fluoride **laser** technology. Ueda, Kenichi; Nishioka, Hajime; Hisano, Hirohiko; Kaminaga, Takeshi; Takuma, Hiroshi (Inst. Laser Sci., Univ. Electro-Commun., Chofu, 182, Japan). Reza Kenkyu, 13(10), 805-13 (Japanese) 1985. CODEN: REKEDA. ISSN: 0387-0200.

AB The Faraday rotator which is transparent over the UV wavelength region was developed. At the wavelength of a KrF **laser**, the Verdet consts. of SiO<sub>2</sub>, H<sub>2</sub>O, and NaCl are larger than the typical value of a Faraday glass for a glass **laser** system. A new technique to generate a repetitive pulse train was demonstrated as an application of the UV Faraday rotator to the KrF **laser** technol. An electron-beam-pumped KrF **laser** with an intracavity Faraday rotator produced an output with alternate polarization whose period is equal to the cavity round-trip time by the injection of a short-pulse polarized beam. The output was sepnd. into a couple of polarized pulse trains by an external polarizer, when the pulse duration of the injection pulse was shorter than the cavity round-trip time of 12 ns. The pulse sepn. was 24 ns and the typical pulse duration was 12 ns.

IT **1314-98-3**, properties **7681-11-0**, properties  
 (Verdet const. of)

RN 1314-98-3 HCA

CN Zinc sulfide (ZnS) (9CI) (CA INDEX NAME)

S==Zn

RN 7681-11-0 HCA

CN Potassium iodide (KI) (8CI, 9CI) (CA INDEX NAME)

I-K

- CC 73-10 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)  
ST **laser** krypton fluoride Faraday rotator  
IT Optical instruments  
    (Faraday rotator, UV, for krypton fluoride **lasers**)  
IT Verdet constant  
    (of materials for UV Faraday rotator for krypton fluoride  
    **lasers**)  
IT Magneto-optical rotation  
    (UV, in krypton fluoride **laser** technol.)  
IT **Lasers**  
    (excimer, krypton fluoride, UV Faraday rotator for)  
IT Exciplexes  
    (excimers, krypton fluoride **laser**, UV Faraday rotator  
    for)  
IT 1314-98-3, properties 1344-28-1, properties 7447-40-7,  
properties 7647-14-5, properties 7681-11-0, properties  
7732-18-5, properties 7758-02-3, properties 7789-75-5,  
properties 60676-86-0  
    (Verdet const. of)  
IT 34160-02-6  
    (**laser**, UV Faraday rotator for)

L77 ANSWER 20 OF 42 HCA COPYRIGHT 2005 ACS on STN  
101:46062 Ultra-wide waveband optics. Jamieson, Thomas H. (Electro-Opt.  
Div., Kollmorgen Corp., Northampton, MA, 01060, USA). Proceedings  
of SPIE-The International Society for Optical Engineering,  
430 (Infrared Technol. 9), 163-71 (English) 1983. CODEN: PSISDG.  
ISSN: 0277-786X.

AB Optical systems are normally usable over a restricted spectral  
waveband. A refractive optical system will only transmit radiation  
over a limited range of wavelengths and it may only produce well  
color cor. images over the part of this transmission band. The  
design is discussed of lens systems for use over the extended  
waveband from about 0.4 to 12 .mu.m, which encompasses the visible,  
the 3-5 .mu.m mid-IR and the 8-12 .mu.m thermal wavebands.  
Discussion is given to the available optical materials including  
glasses formed by chem. vapor deposition and cryst. materials. The  
relationships between the refractive and dispersive properties  
required for wide band color correction are formulated and several  
designs are described which use 2 and 3 optical materials. Some  
discussion is given to the coatings required for such optics viz.  
ultrawide band anti-reflection, mirror and beam splitting coatings.  
The potential use of this type of optical system is in multi-sensor

applications such as dual visual/thermal observation systems perhaps employing staring array technol. and/or CO<sub>2</sub> laser incorporation.

IT 1314-98-3, properties 7681-11-0, properties  
(ultra-wide waveband optics using)  
RN 1314-98-3 HCA  
CN Zinc sulfide (ZnS) (9CI) (CA INDEX NAME)

S—Zn

RN 7681-11-0 HCA  
CN Potassium iodide (KI) (8CI, 9CI) (CA INDEX NAME)

I-K

CC 73-12 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)  
IT 1306-25-8, properties 1314-98-3, properties 1315-09-9  
7440-56-4, uses and miscellaneous 7447-40-7, properties  
7647-14-5, properties 7681-11-0; properties 7758-02-3,  
properties 7783-90-6, properties 7787-69-1 7789-17-5  
76363-73-0 78519-68-3  
(ultra-wide waveband optics using)

L77 ANSWER 21 OF 42 HCA COPYRIGHT 2005 ACS on STN  
100:165206 Ultrawide waveband optics. Jamieson, Thomas H. (Electro-Opt.  
Div., Kollmorgen Corporation, Northampton, MA, 01060-2390, USA).  
Optical Engineering (Bellingham, WA, United States), 23(2), 111-16  
(English) 1984. CODEN: OPEGAR. ISSN: 0091-3286.

AB Optical systems are normally usable over a restricted spectral waveband. A refractive optical system will only transmit radiation over a limited range of wavelengths, and it may produce well color-cor. images over only part of this transmission band. The design is given of lens systems for use over the extended waveband from about 0.4 to 12 .mu.m, which encompasses the visible, the 3 to 5 .mu.m mid-IR, and the 8 to 12 .mu.m thermal wavebands. A discussion is given on the available optical materials, including glasses formed by chem. vapor deposition and cryst. materials. The relation between the refractive and dispersive properties required for wideband color correction are formulated, and several designs are described that use 2 or 3 optical materials. Some discussion is given to the coatings required for such optics, viz., ultrawideband antireflection, mirror, and beam splittings coatings. The potential use of this type of optical system is in multisensor applications such as dual visual/thermal observation systems, perhaps employing staring array technol. and/or CO<sub>2</sub> laser incorporation.

IT 1314-98-3, properties 7681-11-0, properties  
   (ultrawide waveband IR optics using)  
 RN 1314-98-3 HCA  
 CN Zinc sulfide (ZnS) (9CI) (CA INDEX NAME)

S—Zn

RN 7681-11-0 HCA  
 CN Potassium iodide (KI) (8CI, 9CI) (CA INDEX NAME)

I-K

CC 73-12 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)  
 IT 1306-25-8, properties 1314-98-3, properties 1315-09-9  
   7440-56-4, uses and miscellaneous 7447-40-7, properties  
   7647-14-5, properties 7681-11-0, properties 7758-02-3,  
   properties 7783-90-6, properties 7787-69-1 7789-17-5  
   76363-73-0 78519-68-3  
   (ultrawide waveband IR optics using)

L77 ANSWER 22 OF 42 HCA COPYRIGHT 2005 ACS on STN  
 100:59013 Effect of disordering on exciton spectra of copper bromide  
   iodide ( $CuBr_xI_{1-x}$ ) solid solutions. Vo Hoang Thai; Miloslavskii, V.  
   K. (Khar'k. Gos. Univ., Kharkov, USSR). Fizika Tverdogo Tela  
   (Sankt-Peterburg), 25(11), 3234-8 (Russian) 1983. CODEN: FTVTAC.  
   ISSN: 0367-3294.

AB The anal. of the exciton absorption and Faraday rotation spectra of  
 $CuBr_xI_{1-x}$  solid solns. showed that the dependence of the energy of  
 spin-orbit splitting  $\Delta SO$  on  $x$  is nonlinear and the  
 nonlinearity parameter  $bSO$  is pos. and has a max. value (0.24 eV)  
 for solid solns. with a ZnS-type structure. The  
 dependence of the halfwidth  $\Gamma$  of the  $z_1$  exciton peak  
 $\Gamma(z_1(x))$  was explained by a scattering of excitons by a  
 nonperiodic part of the solid soln. potential, brought about by  
 compn. fluctuations. The  $z_3$  exciton peak exhibited an addnl.  
 broadening due to a compn. dependence of its position  $Ez_3(x)$  and to  
 compn. fluctuations.

IT 7681-65-4D, solid solns. with copper bromide  
   (exciton spectra of, disorder effects in)  
 RN 7681-65-4 HCA  
 CN Copper iodide (CuI) (8CI, 9CI) (CA INDEX NAME)

Cu-I

CC 73-4 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)

IT Energy level splitting  
(spin-orbit, of copper bromide iodide solid solns., disorder effects in)

IT 7681-65-4D, solid solns. with copper bromide 7787-70-4D,  
solid solns. with copper iodide  
(exciton spectra of, disorder effects in)

L77 ANSWER 23 OF 42 HCA COPYRIGHT 2005 ACS on STN

98:207204 Thermal lens in elastic and viscoelastic plates. Spevak, I. S. (Khar'k. Gos. Univ., Kharkov, USSR). Kvantovaya Elektronika (Moscow), 8(7), 1425-35 (Russian) 1981. CODEN: KVEKA3. ISSN: 0368-7147.

AB The formation of a thermal lens in a thin plate was studied theor. The lens is caused by a change in the n and surface distortion as a result of nonuniform heating by the high-power **laser** radiation. Both elastic and plastic behaviors of the plate material are considered. The 1st case is studied on the basis of the anal. soln. of the uncoupled thermoelasticity problem; the 2nd case was investigated by means of an elasticviscoelastic analogy. Thermal lens parameters were detd., the lens effect dynamics was studied. A comparison was made between surface (due to the change in thickness and deformation of the surfaces) and bulk (the change in the n lens effects which prove to be comparable by the order of magnitude. For a no. of materials used in the IR engineering, the max. radiation levels were estd. which can be transmitted by the plate under the condition that optical distortions do not exceed the difractional ones. The results make it possible to describe the deformation of the surface of a thin plane mirror exposed to the high-power **laser** radiation.

IT 1314-98-3, properties 7681-11-0, properties  
(laser induced thermal lens in plate of)

RN 1314-98-3 HCA

CN Zinc sulfide (ZnS) (9CI) (CA INDEX NAME)

S==Zn

RN 7681-11-0 HCA

CN Potassium iodide (KI) (8CI, 9CI) (CA INDEX NAME)

I-K

CC 73-10 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)

ST **laser** thermal lens plate material

- IT Lenses  
 (thermal, **laser** induced, in elastic and viscoelastic plates)
- IT 1303-00-0, properties 1309-48-4, properties **1314-98-3**,  
 properties 7440-56-4, properties 7447-40-7, properties  
 7647-14-5, properties **7681-11-0**, properties 7758-02-3,  
 properties 7789-24-4, properties 7789-75-5, properties  
 (**laser** induced thermal lens in plate of)
- L77 ANSWER 24 OF 42 HCA COPYRIGHT 2005 ACS on STN  
 98:98468 Calculation of SHG coefficients for crystals with zinc blende  
 and wurtzite structures by using the equivalent orbital method.  
 Chen, Chuangtian; Shen, Hesheng (Fujian Inst. Res. Struct. Matter,  
 Acad. Sin., Fuzhou, Peop. Rep. China). Wuli Xuebao, 31(8), 1046-56  
 (Chinese) 1982. CODEN: WLHPAR. ISSN: 0372-736X.
- AB The calcn. of 2nd harmonic generation (SHG) coeffs. for crystals  
 with zinc blende and wurtzite structures was carried out by using  
 the equiv. orbital method. The possibility of adopting the energy  
 band functions for calcg. these coeffs. was considered upon  
 neglecting the electron-phonon interactions. The SHG coeffs. for  
 GaP, GaAs, .beta.-ZnS, ZnSe, ZnTe, CuCl, CuBr, CuI  
 , AlSb, InP, CdTe, ZnS, CdS, CdSe, BeO, ZnO, and AlN were  
 then calcd. and the results agreed satisfactorily with the exptl.  
 data.
- CC 73-10 (Optical, Electron, and Mass Spectroscopy and Other Related  
 Properties)
- ST second harmonic generation coeff crystal; selenide **laser**  
 second harmonic coeff
- IT **Laser** radiation  
 (second harmonic generation of, calcn. for crystals with zinc  
 blend and wurtzite structure using equiv. orbital method)
- L77 ANSWER 25 OF 42 HCA COPYRIGHT 2005 ACS on STN  
 95:178400 First-order Raman coefficient as related to elastooptic,  
 linear electrooptic, and second-harmonic-generation coefficients in  
 zinc-blende crystals. Varshney, Subhash C.; Gundjian, Arshavir A.  
 (Honeywell Inform. Syst., Billerica, MA, 01821, USA). Journal of  
 Applied Physics, 52(10), 6301-5 (English) 1981. CODEN: JAPIAU.  
 ISSN: 0021-8979.
- AB The 1st-order Raman coeff. was evaluated for a large no. of zinc  
 blende crystals from the measured values of 2 different sets of  
 coeffs., namely, the elastooptic and the electrooptic coeffs. A  
 validation was made for a previously obtained relation of the Raman  
 coeff. with the elastooptic coeffs. A lattice dynamical relation is  
 given for its evaluation from the linear electrooptic and the  
 2nd-harmonic-generation coeffs. The 2 predictions of the 1st-order  
 Raman coeff. are in agreement and compare favorably with available  
 calcd. values. The Raman coeff. was neg. in all II-VI and III-V

zinc blende crystals, and pos. in the I-VII case.  
 IT 1314-98-3, properties 7681-65-4  
     (elasto-optical data and second harmonic generation coeff. and  
     first-order Raman coeff. for)  
 RN 1314-98-3 HCA  
 CN Zinc sulfide (ZnS) (9CI) (CA INDEX NAME)

S=Zn

RN 7681-65-4 HCA  
 CN Copper iodide (CuI) (8CI, 9CI) (CA INDEX NAME)

Cu-I

CC 73-6 (Spectra by Absorption, Emission, Reflection, or Magnetic  
     Resonance, and Other Optical Properties)  
     Section cross-reference(s): 75  
 IT Laser radiation  
     (second harmonic generation coeff., for zinc blende-type  
     crystals)  
 IT 1303-00-0, properties 1306-25-8, properties 1314-98-3,  
     properties 1315-09-9 1315-11-3 7681-65-4 7758-89-6  
     7787-70-4 12063-98-8, properties  
     (elasto-optical data and second harmonic generation coeff. and  
     first-order Raman coeff. for)

L77. ANSWER 26 OF 42 HCA COPYRIGHT 2005 ACS on STN  
 95:142932 Theory of optical-phonon deformation potentials in tetrahedral  
     semiconductors. Poetz, W.; Vogl, P. (Inst. Theor., Univ. Graz,  
     Graz, A-8010, Austria). Physical Review B: Condensed Matter and  
     Materials Physics, 24(4), 2025-37 (English) 1981. CODEN: PRBMDO.  
     ISSN: 0163-1829.

AB A nonlocal pseudopotential theory of the optical-phonon deformation  
     potentials in 11 diamond and zinc-blende semiconductors is  
     presented. The 1-phonon deformation potentials assocd. with the  
     major conduction- and valence-band states at the .GAMMA., L, and X  
     points were calcd. The effect of the spin-orbit  
     interaction on the optical deformation potentials was examd. An  
     anal. LCAO model is developed which predicts the optical deformation  
     potentials for any tetrahedral semiconductor in a simple yet  
     accurate way. The optical deformation potentials are presented for  
     36 semiconductors. The LCAO model also yields an anal. expression  
     for the optical deformation potentials in terms of the obsd. optical  
     gaps of the semiconductors.

IT 1314-98-3, properties 7681-65-4  
     (optical deformation potential of, from LCAO model)

RN 1314-98-3 HCA  
 CN Zinc sulfide (ZnS) (9CI) (CA INDEX NAME)

S—Zn

RN 7681-65-4 HCA  
 CN Copper iodide (CuI) (8CI, 9CI) (CA INDEX NAME)

Cu—I

CC 76-13 (Electric Phenomena)  
 Section cross-reference(s): 65, 73  
 ST semiconductor optical deformation potential; phonon optical  
 deformation potential semiconductor; spin orbit  
 interaction semiconductor; LCAO semiconductor deformation potential  
 IT Spin, electronic  
 (-orbit coupling, in semiconductors with tetrahedral structure,  
 optical deformation potential in relation to)  
 IT 409-21-2, properties 1303-00-0, properties 1303-11-3, properties  
 1304-56-9 1306-23-6, properties 1306-24-7, properties  
 1306-25-8, properties 1312-41-0, properties 1314-13-2,  
 properties 1314-98-3, properties 1315-09-9 1315-11-3  
 7440-21-3, properties 7440-31-5, properties 7440-56-4,  
 properties 7681-65-4 7758-89-6 7782-40-3, properties  
 7787-70-4 10043-11-5, properties 12005-69-5 12032-44-9  
 12063-98-8, properties 12064-03-8 12232-25-6 12232-27-8  
 13478-41-6 13598-22-6 20205-91-8 20859-73-8 22398-80-7,  
 properties 22831-42-1 24304-00-5 25152-52-7 25617-97-4  
 25617-98-5  
 (optical deformation potential of, from LCAO model)

L77 ANSWER 27 OF 42 HCA COPYRIGHT 2005 ACS on STN  
 92:138329 Quantitative investigation of the two-photon absorption of  
 ruby-laser light in various semiconductors. Kobbe, G.;  
 Klingshirn, C. (Inst. Angew. Phys., Univ. Karlsruhe, Karlsruhe, Fed.  
 Rep. Ger.). Zeitschrift fuer Physik [Sektion] B: Condensed Matter  
 and Quanta, 37(1), 9-12 (English) 1980. CODEN: ZPBBDJ. ISSN:  
 0340-224X.

AB With a Q-switched Ruby-laser ( $\hbar\nu L = 1.785$  eV), the  
 2-photon absorption (TPA) coeff. of various semiconductors was detd.  
 The gap energy,  $E_g$ , of these substances lies in the range of  $\hbar\nu L < E_g < 2\hbar\nu L$ . For all measurements, the same exptl. setup was  
 used, and for the evolution of the data the real, time-dependent  
 intensity of the laser pulse was taken. Thus, the  
 existing discrepancies between the TPA-coeffs. as detd. by various  
 authors with different exptl. techniques can be settled.

IT 1314-98-3, properties 1314-98-3D, solid solns.  
with cadmium sulfide 7681-65-4  
(laser two-photon absorption by)

RN 1314-98-3 HCA

CN Zinc sulfide (ZnS) (9CI) (CA INDEX NAME)

S==Zn

RN 1314-98-3 HCA  
CN Zinc sulfide (ZnS) (9CI) (CA INDEX NAME)

S==Zn

RN 7681-65-4 HCA  
CN Copper iodide (CuI) (8CI, 9CI) (CA INDEX NAME)

Cu—I

CC 73-6 (Spectra by Absorption, Emission, Reflection, or Magnetic Resonance, and Other Optical Properties)

Section cross-reference(s): 76

ST laser two photon absorption semiconductor; selenide

laser two photon absorption

IT Laser radiation

(absorption of two photons of, by various semiconductors in relation to beam)

IT Photon

(absorption of two, by semiconductors in laser beam)

IT Semiconductor materials

(laser two-photon absorption by)

IT 1306-23-6, properties 1306-23-6D, solid solns. with zinc sulfide 1314-13-2, properties 1314-98-3, properties

1314-98-3D, solid solns. with cadmium sulfide 1315-09-9

1315-11-3 7681-65-4 7758-89-6 7787-70-4 13463-67-7,

properties 18282-10-5

(laser two-photon absorption by)

L77 ANSWER 28 OF 42 HCA COPYRIGHT 2005 ACS on STN

91:114620 Optical materials characterization final technical report February 1, 1978-September 30, 1978. Feldman, Albert; Horowitz, Deane; Waxter, Roy M.; Dodge, Marilyn J. (Cent. Mater. Sci., Natl. Meas. Lab., Washington, DC, USA). Report, NBS/TN-993; Order No. PB-292245, 74 pp. Avail. NTIS From: Gov. Rep. Announce. Index (U.S.) 1979, 79(13), 234 (English) 1979.

AB Data obtained as part of the Optical Materials Characterization

Program are summarized in this report. Room temp. values of n as a function of wavelength are presented for the following materials: com. grown KCl, reactive atm. processed (RAP) KCl, KCl nominally doped with 1.5% KI, hot forged CaF<sub>2</sub>, fusion cast CaF<sub>2</sub>, CaF<sub>2</sub> doped with Er (0.001% to 3% Er), SrF<sub>2</sub>, chem. vapor deposited (CVD) ZnSe (2 specimens), and ZnS (CVD, 2 specimens).

Data for the thermo-optic const. (dn/dT) and the linear thermal expansion coeff. are given for the following materials at 180-200.degree.: Al<sub>2</sub>O<sub>3</sub>, BaF<sub>2</sub>, CaF<sub>2</sub>, CdF<sub>2</sub>, KBr, KCl, LiF, MgF<sub>2</sub>, NaCl, NaF, SrF<sub>2</sub>, ZnS (CVD), and ZnSe (CVD). The piezo-optic consts. of the following materials are presented: As<sub>2</sub>S<sub>3</sub> glass, CaF<sub>2</sub>, BaF<sub>2</sub>, Ge, KCl, fused SiO<sub>2</sub>, SrF<sub>2</sub>, a chalcogenide glass (Ge 33%, As 12%, Se 55%) and ZnSe(CVD).

IT 1314-98-3, uses and miscellaneous  
     (IR optical material from)  
 RN 1314-98-3 HCA  
 CN Zinc sulfide (ZnS) (9CI) (CA INDEX NAME)

S—Zn

IT 7681-11-0, uses and miscellaneous  
     (IR optical material from potassium chloride doped with)  
 RN 7681-11-0 HCA  
 CN Potassium iodide (KI) (8CI, 9CI) (CA INDEX NAME)

I—K

CC 73-2 (Spectra by Absorption, Emission, Reflection, or Magnetic Resonance, and Other Optical Properties)

IT Lasers

    (materials for)

IT 1314-98-3, uses and miscellaneous 1315-09-9 1344-28-1,  
     uses and miscellaneous 7447-40-7, uses and miscellaneous  
     7647-14-5, uses and miscellaneous 7681-49-4, uses and  
     miscellaneous 7758-02-3, uses and miscellaneous  
     (IR optical material from)

IT 7681-11-0, uses and miscellaneous  
     (IR optical material from potassium chloride doped with)

L77 ANSWER 29 OF 42 HCA COPYRIGHT 2005 ACS on STN

91:80725 Multilayer scintillator materials. Cusano, Dominic Anthony;  
     Prener, Jerome Sydney (General Electric Co., USA). Ger. Offen. DE  
     2849739 19790523, 23 pp. (German). CODEN: GWXXBX. APPLICATION: DE  
     1978-2849739 19781116.

AB Scintillator structures and a process for producing such structures  
     are described. In particular, a method is given for distributing

the scintillator luminous substances in such a way that the emergence is aided of radiation in the visible wavelength region from the scintillator which would otherwise be scattered within the material. Two designs are revealed: in 1, the luminous material is distributed in a layered structure; in the other, the luminous material is dispersed in a transparent matrix. The following can be used as luminous materials: BaFC<sub>1</sub> (EU), ZnCdS(Ag), ZnCdS(Ag, Ni), CsI(Tl), CsI(Na), CaF<sub>2</sub>(Eu), GeO<sub>2</sub>S(Tb), LaOBr(Dy), LaOBr(Tm), LaOBr(Tb), Bi<sub>4</sub>Ge<sub>3</sub>O<sub>12</sub>, CaWO<sub>4</sub>, ZnS, ZnSe, ZnTe, CdS, CdSe, CdTe or NaI. A substance such as rhodamine is mixed with the liq. matrix material to serve as a wavelength converter. The liq. matrix material is an epoxy material or a silicone/polyamide copolymer which is hardened by chem. activation, UV radiation, or by heating to a sufficiently high temp.

IT 1314-98-3, uses and miscellaneous 1314-98-3D, solid solns. with cadmium sulfide 7681-82-5, uses and miscellaneous

(scintillator luminous substance, for multilayered radiation detectors)

RN 1314-98-3 HCA

CN Zinc sulfide (ZnS) (9CI) (CA INDEX NAME)

S—Zn

RN 1314-98-3 HCA

CN Zinc sulfide (ZnS) (9CI) (CA INDEX NAME)

S—Zn

RN 7681-82-5 HCA

CN Sodium iodide (NaI) (9CI) (CA INDEX NAME)

I—Na

IC B05D005-06; B05D007-26; C03C017-00

CC 71-9 (Nuclear Technology)

IT Siloxanes and Silicones, uses and miscellaneous (polyimide-, matrix material, for scintillator structures)

IT 1306-23-6, uses and miscellaneous 1306-23-6D, solid solns. with zinc sulfide 1306-24-7, uses and miscellaneous 1306-25-8, uses and miscellaneous 1314-98-3, uses and miscellaneous

1314-98-3D, solid solns. with cadmium sulfide 1315-09-9

1315-11-3 7681-82-5, uses and miscellaneous 7789-17-5

7789-75-5, uses and miscellaneous 7790-75-2 12233-56-6

12339-07-0 13718-55-3 13875-40-6

(scintillator luminous substance, for multilayered radiation detectors)

- L77 ANSWER 30 OF 42 HCA COPYRIGHT 2005 ACS on STN  
 84:82183 F+-centers and electronic excitations of vacancies near anions in alkali earth sulfides. Kuznetsov, A. S. (USSR). Eesti NSV Teaduste Akadeemia Füüsika Instituudi Uurimused, 43, 192-210 (Russian) 1975. CODEN: ENTUDN. ISSN: 0134-627X.
- AB The title problem was studied by measuring the EPR, diffuse reflection, and luminescence spectra of undeformed and pressure-deformed (at 10-100 kg/mm<sup>2</sup>) specimens of CaS, SrS, and BaS at room temp. and of KI at 110 and 78.degree.K. The results show that the deformation generates F-centers in the crystals and is responsible for the appearance of addnl. absorption bands which are attributed to optical transition of electrons from the valence band to the anion vacancy level. A similar transition may also take place in the .alpha.-band of alkali metal halides. The position of the anion vacancy level with respect to the valence band in CaS and SrS was evaluated.
- IT 21109-95-5  
 (F+-centers and electronic excitations of vacancies near anions in)
- RN 21109-95-5 HCA  
 CN Barium sulfide (BaS) (7CI, 9CI) (CA INDEX NAME)

Ba—S

- IT 7681-11-0, properties  
 (electronic transitions of vacancies near anions in)  
 RN 7681-11-0 HCA  
 CN Potassium iodide (KI) (8CI, 9CI) (CA INDEX NAME)

I-K

- CC 73-4 (Spectra by Absorption, Emission, Reflection, or Magnetic Resonance, and Other Optical Properties)  
 Section cross-reference(s): 75
- IT Electron spin resonance  
 (of color centers in alk. earth sulfides)
- IT 1314-96-1 20548-54-3 21109-95-5  
 (F+-centers and electronic excitations of vacancies near anions in)
- IT 7681-11-0, properties  
 (electronic transitions of vacancies near anions in)

82:147351 Calculations of the frequency dependence of elasto optic constants on infrared **laser** window materials. Bendow, Bernard; Gianino, Peter D. (Air Force Cambridge Res. Lab., Hanscom AFB, Bedford, MA, USA). Physical Sciences Research Papers (United States, Air Force Cambridge Research Laboratories), 608, 111 pp. (English) 1974. CODEN: XCPSAO. ISSN: 0099-8451.

AB Theor. predictions of the photoelastic parameters of potential ir **laser** window materials indicate that the birefringence effects at 10.6 .mu. are sizeable in diat. ionic materials with rock-type structure, and strongly influence thermal lensing behavior, but are relatively minor in diat. semiconductor materials with zinc blende-type structure; the limited available exptl. data do not support theor. predictions. The photoelastic consts. ( $p_{ij}$ ) were calcd. as functions of frequencies throughout the ir region by using the theory of L. B. Humphreys and A. A. Maradudin (1972). For ionic crystals, a Born-Mayer interat. potential was used. For semiconductors, a Morse potential was used.

IT 7681-11-0, properties 7681-82-5, properties  
 (photoelastic parameter and thermal lensing effect in, ir **laser** window potential in relation to)

RN 7681-11-0 HCA

CN Potassium iodide (KI) (8CI, 9CI) (CA INDEX NAME)

## I-K

RN 7681-82-5 HCA

CN Sodium iodide (NaI) (9CI) (CA INDEX NAME)

## I-Na

IT 1314-98-3, properties  
 (photoelastic parameter and thermal lensing in, ir **laser** window material potential in relation to)

RN 1314-98-3 HCA

CN Zinc sulfide (ZnS) (9CI) (CA INDEX NAME)

## S-Zn

CC 73-2 (Spectra by Absorption, Emission, Reflection, or Magnetic Resonance, and Other Optical Properties)

ST **laser** induced birefringence IR; photoelasticity alkali halide IR; semiconductor thermal lensing IR

IT Semiconductor materials  
 (ir **laser** windows of)

IT Alkali metal halides, uses and miscellaneous

(ir **laser** windows of, photoelastic effect and thermal lensing in relation to)

IT Photoelasticity  
(of ir **laser** window materials, calcn. of)

IT **Lasers**  
(window materials for ir, photoelastic effects and thermal lensing in relation to)

IT 7447-40-7, properties 7647-14-5, properties 7647-15-6,  
properties 7681-11-0, properties 7681-82-5,  
properties 7758-02-3, properties 7789-23-3 7789-39-1  
7791-11-9 13446-74-7

(photoelastic parameter and thermal lensing effect in, ir **laser** window potential in relation to)

IT 1303-00-0, properties 1305-78-8, properties 1306-25-8  
1309-48-4, properties 1314-98-3, properties 1315-09-9  
7783-90-6 7785-23-1 7790-29-6 12063-98-8, properties  
(photoelastic parameter and thermal lensing in, ir **laser** window material potential in relation to)

IT 7447-41-8, properties 7550-35-8 7681-49-4, properties  
7789-24-4, properties 10377-51-2  
(photoelastic parameters and thermal lensing effect in, ir **laser** window material potential in relation to)

L77 ANSWER 32 OF 42 HCA COPYRIGHT 2005 ACS on STN

81:7846 Photoelastic constants of infrared transmitting materials.

Bendow, Bernard; Gianino, Peter D. (Solid State Sci. Lab., Air Force Cambridge Res. Lab., Bedford, MA, USA). NBS Special Publication (United States), 387, 194-201 (English) 1973. CODEN: XNBSAV. ISSN: 0083-1883.

AB The effects were calcd. of lattice dispersion on photoelastic consts. Pij. A 1st-principles calcn. of the pij's of a wide variety of rock salt- and zinc blende-type crystals was carried out by using the theory of L. B. Humphreys and A. A. Marodudin (1972). For ionic crystals, a Born-Mayer interat. potential was employed while for semiconductors a Morse potential was used. The electronic contribution to the pij's dominates in most semiconducting crystals so that dispersion in the transparent frequency regime is generally negligible. For ionic materials, however, dispersion can be important; values at 10.6 .mu. may differ from those in the visible by 25-50%, even for the better potential **laser** window materials.

IT 1314-98-3, properties 7681-11-0, properties  
7681-82-5, properties  
(photoelastic consts. of, calcn. of)

RN 1314-98-3 HCA

CN Zinc sulfide (ZnS) (9CI) (CA INDEX NAME)

S==Zn

RN 7681-11-0 HCA  
CN Potassium iodide (KI) (8CI, 9CI) (CA INDEX NAME)

I-K

RN 7681-82-5 HCA  
CN Sodium iodide (NaI) (9CI) (CA INDEX NAME)

I-Na

CC 73-2 (Spectra by Absorption, Emission, Reflection, or Magnetic Resonance, and Other Optical Properties)  
Section cross-reference(s): 71  
IT 1303-00-0, properties 1305-78-8, properties 1306-25-8  
1309-48-4, properties 1314-98-3, properties 7447-40-7,  
properties 7447-41-8, properties 7550-35-8 7647-14-5,  
properties 7647-15-6, properties 7681-11-0, properties  
7681-49-4, properties 7681-82-5, properties 7758-02-3,  
properties 7783-90-6 7785-23-1 7789-23-3 7789-24-4,  
properties 7789-39-1 7790-29-6 7791-11-9 12063-98-8,  
properties 13446-74-7  
(photoelastic consts. of, calcn. of)

L77 ANSWER 33 OF 42 HCA COPYRIGHT 2005 ACS on STN  
75:114666 Photoelectron spectrometry of inorganic solids. Joergensen,  
Christian K. (Dep. Chim. Phys., Univ. Geneve, Geneva, Switz.).  
Chimia, 25(7), 213-22 (English) 1971. CODEN: CHIMAD. ISSN:  
0009-4293.

AB A discussion is given of the highly different probability of ionization of each shell of a given element by x-ray photons. The chem. shift of ionization energies I indicate differing Hartree potentials. The multiple I of an inner shell in systems having pos. spin quantum no. S were studied in 11 high-spin Ni(II) compds. Scotch tape was used as internal std. The Madelung potential in almost ionic compds. and the relation between optical electronegativities and I of valence electrons are treated.

IT 1314-98-3, properties 7681-11-0, properties  
(ionization energy of, photoelectron spectrum in relation to)

RN 1314-98-3 HCA  
CN Zinc sulfide (ZnS) (9CI) (CA INDEX NAME)

S==Zn

RN 7681-11-0 HCA  
 CN Potassium iodide (KI) (8CI, 9CI) (CA INDEX NAME)

I-K

CC 73 (Spectra by Absorption, Emission, Reflection, or Magnetic Resonance, and Other Optical Properties)  
 IT 1306-19-0 1309-48-4, properties 1313-99-1, properties  
     1314-06-3 1314-13-2, properties 1314-98-3, properties  
     6018-94-6 7440-02-0, properties 7447-40-7, properties  
     7647-17-8, properties 7681-11-0, properties 7783-48-4  
     7787-32-8 7787-69-1 7789-17-5 7789-23-3 7789-24-4,  
     properties 7789-75-5, properties 7790-79-6 13400-13-0  
     13478-93-8 13845-06-2 13940-83-5 14215-54-4 14267-17-5  
     14434-49-2 14708-53-3 15304-51-5 15347-43-0 15747-95-2  
     30111-46-7 31160-99-3 33849-37-5 34417-22-6 34417-23-7  
     41876-30-6  
     (ionization energy of, photoelectron spectrum in relation to)

L77 ANSWER 34 OF 42 HCA COPYRIGHT 2005 ACS on STN  
 73:50451 Oriented basic research in the physical sciences. Teegarden, Kenneth J. (Univ. of Rochester, Rochester, NY, USA). U.S. Clearinghouse Fed. Sci. Tech. Inform., AD, No. 701104, 4 pp. Avail. CFSTI From: U. S. Govt. Res. Develop. Rep. 1970, 70(7), 197 (English) 1970. CODEN: XCCIAV.

AB The optical absorption of both pure alkali halides and alloys of RbCl-RbI, KCl-KI was measured at temps. low enough to reveal previously unobsd. structure in excitonic absorption lines. Studies of intrinsic luminescence have revealed new emission bands probably related to trapped exciton states, and have demonstrated the importance of host sensitized luminescence in the alkali halides. Two photon absorption measurements were attempted in KCl:Ag and NaCl:Ag. The 2-photon absorption spectrum of ZnS and CdS was measured over a 2-photon energy range 2.5-4.2 eV.

IT 1314-98-3, properties  
     (optical absorption of two photons by, in laser beam)

RN 1314-98-3 HCA  
 CN Zinc sulfide (ZnS) (9CI) (CA INDEX NAME)

S==Zn

IT 7681-11-0, properties

RN 7681-11-0 HCA  
 CN Potassium iodide (KI) (8CI, 9CI) (CA INDEX NAME)

(solid solns. with potassium chloride, electronic spectrum of)

## I-K

CC 73 (Spectra by Absorption, Emission, Reflection, or Magnetic Resonance, and Other Optical Properties)  
 IT Laser radiation  
     (absorption of two photons of, by alkali metal halides contg. silver)  
 IT Photons  
     (absorption of two, by alkali metal halides contg. silver in laser beam)  
 IT 7647-14-5, properties  
     (optical absorption of two photons by, contg. silver in laser beam)  
 IT 1306-23-6, properties 1314-98-3, properties  
     (optical absorption of two photons by, in laser beam)  
 IT 7440-22-4, properties  
     (optical absorption of two photons by, in sodium chloride in laser beam)  
 IT 7681-11-0, properties  
     (solid solns. with potassium chloride, electronic spectrum of)

L77 ANSWER 35 OF 42 HCA COPYRIGHT 2005 ACS on STN  
 72:37482 Second-order Raman-laser spectra of some cubic binary single crystals. Krauzman, Michel (Dep. Rech. Phys., Fac. Sci. Paris, Paris, Fr.). Light Scattering Spectra Solids, Proc. Int. Conf., Meeting Date 1968, 109-18. Editor(s): Wright, George B. Springer-Verlag New York Inc.: New York, N. Y. (English) 1969.  
 CODEN: 22BEAT.

AB The assignments and principal phonon frequencies are given for the Raman scattering spectra of polarized light by NaCl, KBr, and KI (K., 1967-68). The gap between acoustical and optical frequencies increases with the ratio of masses of the 2 atoms. The Raman spectra of KCl and RbI are given, but were not analyzed. The assignments for the Raman spectrum of ZnS (K., 1968) are confirmed by measurements of the ratio of intensities of the lines at 80 and 360.degree.K plotted vs. frequency. The Raman spectra, at 90 and 300.degree.K, of a CuCl single crystal of unknown orientation is given.  
 IT 7681-11-0, properties  
     (spectrum of, phonons in relation to second-order laser-induced Raman)  
 RN 7681-11-0 HCA  
 CN Potassium iodide (KI) (8CI, 9CI) (CA INDEX NAME)

## I-K

CC 73 (Spectra by Absorption, Emission, Reflection, or Magnetic Resonance, and Other Optical Properties)

IT Spectra, Raman  
(of cubic binary crystals, **laser**-induced second-order)

IT Alkali metal halides, properties  
(spectra of, second-order **laser**-induced Raman)

IT 7447-40-7, properties 7647-14-5, properties 7681-11-0,  
properties 7758-02-3, properties 7758-89-6 7790-29-6  
(spectrum of, phonons in relation to second-order **laser**-induced Raman)

L77 ANSWER 36 OF 42 HCA COPYRIGHT 2005 ACS on STN

68:55035 Band structure of copper halides: cuprous chloride, cuprous bromide, and cuprous iodide. Song, Kong-Sop (Inst. Phys., Strasbourg, Fr.). Journal of Physics and Chemistry of Solids, 28(10), 2003-9 (French) 1967. CODEN: JPCSAW. ISSN: 0022-3697.

AB According to a recent band calcn. the highest valence band of CuCl is of 3d of Cu origin. Taking this fact into consideration, the second valence band, of 3p of Cl origin, is regarded as the valence band in comparing the calcd. interband energies of CuCl to those of the isoelectronic compds.; Ge-Si, GaP, and ZnS. The theory of Herman and Callaway on the interband energies of zinc blende type semiconductors is shown to apply very satisfactorily to I-VII compds. too. Guided by this agreement with Herman-Callaway's theory the uv spectra of CuCl, CuBr, and CuI are reinterpreted in a coherent way. This is also in satisfactory agreement with the calcd. band scheme for CuCl. Band schemes of CuBr and CuI are proposed which are similar to that of CuCl. 15 references.

IT 1314-98-3, properties 7681-65-4  
(energy level band structure and visible and uv spectrum of)

RN 1314-98-3 HCA

CN Zinc sulfide (ZnS) (9CI) (CA INDEX NAME)

S---Zn

RN 7681-65-4 HCA

CN Copper iodide (CuI) (8CI, 9CI) (CA INDEX NAME)

Cu-I

CC 73 (Spectra and Other Optical Properties)

IT 1303-00-0, properties 1314-98-3, properties  
7681-65-4 7758-89-6 7787-70-4  
(energy level band structure and visible and uv spectrum of)

L77 ANSWER 37 OF 42 HCA COPYRIGHT 2005 ACS on STN  
65:44805 Original Reference No. 65:8327g-h,8328a Electrolytic cell for use as a real-time spatial filter. Hoffman, A. S. (N. American Aviation, Anaheim, CA). Journal of the Optical Society of America, 56(6), 829-9 (English) 1966. CODEN: JOSAAH. ISSN: 0030-3941.

AB A reversible light-modulated electrolytic cell that could be used as a real-time spatial filter has been prep'd. The transparent anode of the cell consisted of SnO-coated glass which is fairly transparent to the 6328 A. line of the He-Ne gas laser used as the source. The cathode consisted of a 5.mu. layer of Cd sulfide selenide deposited on SnO on a glass substrate. The Cd sulfide selenide solid soln. was about 25% Se and 75% S and doped with Ag. When voltage of the proper polarity was applied to the cell and the desired illuminance incident on the photoconductive layer, the metallic ion in the electrolyte soln. was electrodeposited on the cathode surface in accordance with the spatial distribution of illuminance. Upon reversal of the cell voltage, the deposited cathodic layer went back into soln. and was available for subsequent deposition; it did not deposit on the opposite electrode. The deposition of Ag gives the highest ratio of absorbance change to applied charge d. at the He-Ne line. An electrolyte soln. consisting of M AgI plus M NaOH in 5M NaI optimizes many of the factors detg. the effect.

CC 15 (Electrochemistry)

IT 1306-23-6, Cadmium sulfide

(phosphors from ZnS, solid solns. with CdSe, for electrolytic cells for realtime spatial filters)

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63:67598 Original Reference No. 63:12426f-h,12427a Elastic properties of crystals in the cubic system. Bystrova, T. G.; Fedorov, F. I. Vestsi Akad. Navuk Belarusk. SSR, Ser. Fiz.-Mat. Navuk (1), 35-48 (Belorussian) 1965.

AB Applications of the approximated theory of elastic waves to crystals in general and to crystals in the cubic system in particular are considered from the standpoint of an estn. of the elastic-anisotropy of crystals (CA 59, 3379g). By using the relations derived, values of the relative mean quadratic elastic anisotropy .DELTA.m, max. angles of deviation of the vector of displacement of the elastic wave from the wave normal, and other values characterizing the elastic properties of crystals were calcd. for 82 substances crystg. in the cubic system on the basis of elasticity consts. taken from the literature. The crystals studied were subdivided into 3 groups: (1) 26 crystals with low anisotropy (.DELTA.m = 0.0043-0.04),

including Al, BaF<sub>2</sub>, W (.DELTA.m 0.0043), V (.DELTA.m 0.04), Co, Fe<sub>3</sub>O<sub>4</sub>, NaBrO<sub>3</sub>, Sr(NO<sub>3</sub>)<sub>2</sub>, and 18 alums; (2) crystals with medium anisotropy (.DELTA.m = 0.041-0.20), the largest group (55% of all crystals studied), which included ZnS, NaI, Cu, Ag, Mo, K-Al alum (.DELTA.m 0.041), RbF (.DELTA.m = 0.20), and others; and (3) 11 crystals with high anisotropy (.DELTA.m = 0.22 - 0.34) including RbCl, RbBr, RbI, Na (.DELTA.m 0.34), Li, FeS<sub>2</sub> pyrite (.DELTA.m 0.22), K, KBr, KCl, KI, and Th. Alkali metals and their halides had a high anisotropy; fluorides had the lowest value of .DELTA.m among the halides, while the 3 other halides had approx. the same value. The higher the anisotropy of an alkali metal, the lower it was for its halides. All alums studied had a low anisotropy, with the exception of 2 (K-Al and K-Ga). Elements of the Group 1 of the periodic system (alkali metals, Cu, Ag, Au) had a relatively high anisotropy, which decreased in the order of their place in the periodic table. All elements of the Group 4 had an anisotropy in the middle range; here the values of .DELTA.m increased with the placing in the periodic table.

IT 1314-98-3, Zinc sulfide 7681-11-0, Potassium iodide 7681-82-5, Sodium iodide (elastic properties of, anisotropy of)

RN 1314-98-3 HCA

CN Zinc sulfide (ZnS) (9CI) (CA INDEX NAME)

S—Zn

RN 7681-11-0 HCA

CN Potassium iodide (KI) (8CI, 9CI) (CA INDEX NAME)

I—K

RN 7681-82-5 HCA

CN Sodium iodide (NaI) (9CI) (CA INDEX NAME)

I—Na

CC 8 (Crystallization and Crystal Structure)

IT Alums

Diamonds

**Spinels**

(elastic properties of, anisotropy of)

IT 100-97-0, Hexamethylenetetramine 151-50-8, Potassium cyanide

1303-00-0, Gallium arsenide 1308-31-2, Chromite (the mineral)

1309-36-0, Pyrite 1309-38-2, Magnetite 1309-48-4, Magnesium

oxide 1312-41-0, Indium antimonide 1314-87-0, Lead sulfide

1314-98-3, Zinc sulfide 7429-90-5, Aluminum 7439-89-6,  
 Iron 7439-92-1, Lead 7439-93-2, Lithium 7439-98-7, Molybdenum  
 7440-05-3, Palladium 7440-09-7, Potassium 7440-21-3, Silicon  
 7440-22-4, Silver 7440-23-5, Sodium 7440-29-1, Thorium  
 7440-33-7, Tungsten 7440-48-4, Cobalt 7440-57-5, Gold  
 7440-62-2, Vanadium 7447-40-7, Potassium chloride 7447-41-8,  
 Lithium chloride 7550-35-8, Lithium bromide 7647-15-6, Sodium  
 bromide 7647-17-8, Cesium chloride 7681-11-0, Potassium  
 iodide 7681-49-4, Sodium fluoride 7681-82-5, Sodium  
 iodide 7775-09-9, Sodium chlorate 7783-90-6, Silver chloride  
 7784-25-0, Ammonium aluminum sulfate, NH<sub>4</sub>Al(SO<sub>4</sub>)<sub>2</sub> 7785-23-1,  
 Silver bromide 7787-32-8, Barium fluoride 7787-69-1, Cesium  
 bromide 7789-17-5, Cesium iodide 7789-23-3, Potassium fluoride,  
 KF 7789-24-4, Lithium fluoride 7789-38-0, Sodium bromate  
 7789-39-1, Rubidium bromide 7789-40-4, Thallium bromide, TlBr  
 7789-75-5, Calcium fluoride 7790-29-6, Rubidium iodide  
 7791-11-9, Rubidium chloride 7791-12-0, Thallium chloride, TlCl  
 10022-31-8, Barium nitrate 10042-76-9, Strontium nitrate  
 10043-67-1, Aluminum potassium sulfate, KAl(SO<sub>4</sub>)<sub>2</sub> 10377-51-2,  
 Lithium iodide 12064-03-8, Gallium antimonide 12124-97-9,  
 Ammonium bromide 12125-02-9, Ammonium chloride 13446-74-7,  
 Rubidium fluoride 13530-57-9, Rubidium aluminum sulfate,  
 RbAl(SO<sub>4</sub>)<sub>2</sub> 13813-27-9, Aluminum ammonium selenate, NH<sub>4</sub>Al(SeO<sub>4</sub>)<sub>2</sub>  
 13825-85-9, Aluminum thallium sulfate, TlAl(SO<sub>4</sub>)<sub>2</sub> 14708-58-8,  
 Rubidium disulfatoindate(III) 15043-71-7, Cesium iron sulfate,  
 CsFe(SO<sub>4</sub>)<sub>2</sub> 15335-98-5, Gallium ammonium sulfate, NH<sub>4</sub>Ga(SO<sub>4</sub>)<sub>2</sub>  
 15335-98-5, Ammonium gallium sulfate, NH<sub>4</sub>Ga(SO<sub>4</sub>)<sub>2</sub> 15336-01-3,  
 Rubidium gallium sulfate, RbGa(SO<sub>4</sub>)<sub>2</sub> 30734-39-5, Cesium  
 disulfatoindate(III) 39396-58-2, Germanium alloys, aluminum-  
 54387-36-9, Aluminum sulfate, compd. with methylamine sulfate  
 (1:2:1)  
 (elastic properties of, anisotropy of)

L77 ANSWER 39 OF 42 HCA COPYRIGHT 2005 ACS on STN

60:86468 Original Reference No. 60:15133e-f Measurement of the uranium  
 and thorium content of rocks, using an E.M.I., 9530B, 5 inch  
 photomultiplier tube. Byrne, F. N. (Trinity Coll., Dublin, Ire.).  
 Sci. Proc. Roy. Dublin Soc., Ser. A 1(14), 343-64 (Unavailable)  
 1963.

AB Th in samples of ultrabasic, basic, and acidic igneous rocks and  
 deep-sea deposits was detd. by .gamma.-ray emission, then the U  
 content was calcd. from .alpha.-ray emission. In the igneous rocks,  
 the Th/U ratio was 1.0-2.5. The ultrabasic rocks were low in Th  
 with the deep-sea sediments contg. Th, esp. the Mn nodules. The  
 1/16-in. deep sample was placed below a photomultiplier face covered  
 with silicone vacuum pump oil and sprayed with  
 Ag-activated ZnS powder. A U efficiency of 65% was detd.,  
 and that of Th was calcd. to be 70%. After removing the Rn-contg.

air, the rest of the background may be due to the glass of the photomultiplier. The min. amts. of detn. are 5 times. 10<sup>-8</sup> g. U/g. and 0.04 times. 10<sup>-5</sup> g. Th/g. The 600 g. sample for alpha-ray counting at 2.62 m.e.v. was packed in the sides and one end of a cylinder surrounding the 3-in. deep Tl-activated NaI crystal. An array of Geiger tubes in anticoincidence was used on the top of the 4-in. Pb shield. The ThO<sub>2</sub> standard was hermetically sealed. The sample was assumed to contain 3 times as much Th as U. The min. detn. limit was 0.04 g. Th/g.

CC 2 (Analytical Chemistry)

L77 ANSWER 40 OF 42 HCA COPYRIGHT 2005 ACS on STN

57:8371 Original Reference No. 57:1690f-h Luminescence accompanied by electrolysis in cadmium sulfide single crystals. Maruyama, Eiichi (Hitachi Central Res. Lab., Tokyo). Journal of the Physical Society of Japan, 16, 2341-2 (Unavailable) 1961. CODEN: JUPSAU. ISSN: 0031-9015.

AB The conduction properties of a CdS crystal, doped with Cl in contact with an electrolyte, were investigated. The crystal had a resistivity of apprx. 0.10 ohm cm. The reverse dark current (crystal pos. biased to the soln.) rises at 1st proportionally to the applied voltage. This proportionality breaks down at 2-3 v. At 20-25 v., a neg. resistance region appears and then the current rises more rapidly. The breakdown is accompanied by an orange luminescence. The emission is believed to be a surfaceluminescence. Minority carrier injection mechanism does not fit here since the crystals used are n-type and the luminescence is observed only at the neg. electrode of the crystals. The neg. ion dependence of the emission spectra suggests that the luminescence is caused by immediate recombination of injected electrons and trapped holes while the formers are still retaining their original energy.

IT 7681-82-5, Sodium iodide  
(cadmium sulfide contg. Cl in contact with soln. of,  
electroluminescence of)

RN 7681-82-5 HCA

CN Sodium iodide (NaI) (9CI) (CA INDEX NAME)

I-Na

CC 9 (Electric and Magnetic Phenomena)

IT 7681-82-5, Sodium iodide  
(cadmium sulfide contg. Cl in contact with soln. of,  
electroluminescence of)

IT 98-86-2, Acetophenone  
(laser emission from solid)

IT 1306-23-6, Cadmium sulfide  
(phosphors from ZnS, phosphors (includes

scintillators), electroluminescence of Cl-contg. single crystals of, in contact with electrolyte soln.)

L77 ANSWER 41 OF 42 HCA COPYRIGHT 2005 ACS on STN

44:43558 Original Reference No. 44:8316i, 8317a-i, 8318a-i Selenenyl thiolates. Rheinboldt, Heinrich; Giesbrecht, Ernesto (Univ., Sao Paulo, Brazil). Ann., 568, 198-217 (Unavailable) 1950. OTHER SOURCES: CASREACT 44:43558.

AB The term "selenenyl thiolate" refers to compds. of the type RSSeR' (I) (where either R or R' is an aryl group, and R and R' may be identical or different). Two general methods of prepn. were used: either selenenyl halides were condensed with mercaptans or thiophenols, or sulfenyl halides were treated with seleno-mercaptans or selenophenols. In either case excellent yields of I were obtained, but the 1st method is preferred (cf. Lecher, C.A. 14, 3080). The sym. compds. of type I form uninterrupted series of mixed crystals with both the disulfides and diselenides. Unsym. compds. of type I also give mixed-crystal series with the corresponding disulfides. Phase diagrams were obtained by the Rheinboldt "softening-m.p. method" (cf. C.A. 20, 613) and were controlled by the Kofler contact-zone technique (C.A. 35, 7811.9). A no. of binary systems were examd. and a few detailed data are given. PhSeBr (II) (7.1 g.) triturated with 3.3 g. PhSH, followed by maceration with 5% aq. NaOH and H<sub>2</sub>O gave 90.2% PhSeSPh (III), brilliant yellow needles, m. 57.3-8.degree. (from MeOH), turning deep red when heated gradually above the m.p., but returning to the original yellow color (and m.p.) on gradual cooling (and behaving similarly when heated in xylene). III and most of its analogs are insol. in H<sub>2</sub>O and nearly insol. in cold MeOH, but sol. in nearly all other cold org. solvents, form no adduct with HgCl<sub>2</sub>, and evolve N<sub>2</sub> when treated in dioxane with Feigl NaN<sub>3</sub>-iodine reagent (C.A. 28, 6393.1), and dissolve in MeOH-KOH without color change. III (82.7% crude yield) was also formed from 5.8 g. PhSCl and PhSeMgBr (from 0.96 g. Mg, 6.25 g. PhBr, and 3.2 g. gray Se in 50 cc. Et<sub>2</sub>O). III (2.65 g.) in 45 cc. CHCl<sub>3</sub> at 0.degree. with 3.2 g. Br gave almost quant. PhSeBr<sub>3</sub>, brilliant red needles, m. 105-6.degree. (from CHCl<sub>3</sub>), the mother liquors from which when treated with EtOH gave 91.7% (PhS)<sub>2</sub>, m. 60-1.degree.. The binary systems III-(PhS)<sub>2</sub>, III-(PhSe)<sub>2</sub>, and (PhSe)<sub>2</sub>-(PhS)<sub>2</sub> were studied. The 1st 2 show no m.-p. min. and belong to type 1 of the Bakhuis-Roozeboom classification. The 3rd system, however, shows a eutectic point in a 50-50 mixt. and is classed as "type 3." From o-O<sub>2</sub>NC<sub>6</sub>H<sub>4</sub>SeBr and o-O<sub>2</sub>NC<sub>6</sub>H<sub>4</sub>SH (IV) was formed almost quant. o-O<sub>2</sub>NC<sub>6</sub>H<sub>4</sub>SeSC<sub>6</sub>H<sub>4</sub>NO<sub>2</sub>, greenish-yellow rodlets, m. 197.3-98.2.degree., with properties similar to those of II. o-O<sub>2</sub>NC<sub>6</sub>H<sub>4</sub>SSePh (V), m. 58-8.8.degree. (from petr. ether), was formed in the following yields: from II and IV, 95%; from o-O<sub>2</sub>NC<sub>6</sub>H<sub>4</sub>SCl (or Br) and PhSeH, 96.5-96.7%; from o-O<sub>2</sub>NC<sub>6</sub>H<sub>4</sub>SCNS (m. 92.2-3.2.degree.) and PhSeH, 96.8%; and from

$\text{o-O}_2\text{NC}_6\text{H}_4\text{SCNSe}$  and  $\text{PhSeH}$ , 83.5%. Br fission of V yielded almost quant.  $\text{PhSeBr}_3$  and  $\text{o-O}_2\text{NC}_6\text{H}_4\text{SBr}$ , m. 83.5-5.degree.. 1-C<sub>10</sub>H<sub>7</sub>SMgBr and II in Et<sub>2</sub>O gave, after acidification, 71% 1-C<sub>10</sub>H<sub>7</sub>SSePh, yellow, m. 59.5-60.5.degree. (from petr. ether), reacting with Feigl reagent.  $\text{o-O}_2\text{NC}_6\text{H}_4\text{SeBr}$  (VI), m. 64-5.degree., and n-C<sub>16</sub>H<sub>33</sub>SH (b10 186-8.degree., m. 18-19.degree.) in Et<sub>2</sub>O gave 95.4%  $\text{o-O}_2\text{NC}_6\text{H}_4\text{SeSC}_6\text{H}_{13}$ , brilliant yellow leaflets, m. 51-2.degree. (from alc.). VI (1.4 g.) and 2.52 g. cholestenyl Pb mercaptide in C<sub>6</sub>H<sub>6</sub> gave 0.092 g. PbBr<sub>2</sub> and 97.2%  $\text{o-nitrophenylselenenyl cholestene-3-thiolate}$ , C<sub>33</sub>H<sub>49</sub>O<sub>2</sub>NSe, yellow microcrystals, m. 123.6-124.7.degree., dissolving very slowly in alc. KOH with violet color, and failing to react with Feigl reagent. VI and PhCH<sub>2</sub>SH gave  $\text{o-O}_2\text{NC}_6\text{H}_4\text{SeSCH}_2\text{Ph}$ , yellow, m. 53.8-4.6.degree., giving (instantly) a deep violet soln. in MeOH-KOH, and reacting gradually with Feigl reagent. Prepd. analogously was (97.4%)  $\text{o-O}_2\text{NC}_6\text{H}_4\text{SeSPh}$  (VII), m. 54-5.degree., giving a purple soln. in alc. KOH, and reacting rapidly with Feigl reagent (also formed in excellent yield from VI and PhSNa or PhSAg). Sapon. of 3.10 g. VII in aq.-alc. KOH, followed by acidification, gave 1 g. PhSH [identified as 2, 4-(O<sub>2</sub>N)-2C<sub>6</sub>H<sub>4</sub>SPh, m. 120-1.degree.], 1.31 g. ( $\text{o-O}_2\text{NC}_6\text{H}_4\text{Se})_2$  (VIII), yellow, m. 210-11.degree. (from C<sub>6</sub>H<sub>6</sub>, and 0.68 g.  $\text{o-O}_2\text{NC}_6\text{H}_4\text{SeO}_2\text{H}$ , colorless, m. 183-4.degree. (Behaghel and Seibert, C.A. 27, 4785). The sepn. and purifn. of these products are fully described. VII (1.55 g.) degraded with HgCl<sub>2</sub> in alc. gave 0.7 g. VIII and in the filtrate a mixt. (m. 44.8-52.5.degree.) of 0.0382 g. VII and 0.0471 g. (PhS)<sub>2</sub>. VII was unchanged when boiled in alc. or HCl in alc. Oxidn. of 3.10 g. VII in hot glacial AcOH with perhydrol gave approx. equiv. amts. (91.7-9%) of  $\text{o-O}_2\text{NC}_6\text{H}_4\text{SeO}_2\text{H}$  and PhSO<sub>3</sub>H (identified as PhSO<sub>2</sub>NH<sub>2</sub>, m. 111-12.degree.), besides very small amts. of (PhS)<sub>2</sub> and VIII. The perhydrol oxidn. of 3.1 g. VIII in Me<sub>2</sub>CO at room temp. gave 0.9 g. o,o'-dinitrodiphenyldiselenium oxide, also termed the "selenol-selenone acid ester," O<sub>2</sub>NC<sub>6</sub>H<sub>4</sub>Se.SeO<sub>2</sub>.C<sub>6</sub>H<sub>4</sub>NO<sub>2</sub>, orange needles, m. 158.5-60.degree. (decompn.) (from xylene) (sol. in cold alc. NaOH with a violet color, reduced quant. to VIII by KI in AcOH), together with 1.1 g. VIII and 1.3 g. PhSO<sub>2</sub>H, m. 79-83.degree. [identified by redn. to (PhS)<sub>2</sub>]. The various oxidns. are fully discussed and details are given for sepn. and purifn. of the various products. A study of the binary system VII indicated that it was of the Bakhuys-Roozeboom type 3, with a min. m.p. at 43-4.degree. (at 33% VII). The following table gives new compds. (type I) or (R'SeS)<sub>2</sub>R'' prepd. by analogous methods (ordinarily from the appropriate Se halides and mercaptans or mercaptides): R', R or R'', m.p., .degree.C, Crude, yields, %, Remarks;  $\text{o-O}_2\text{NC}_6\text{H}_4$ , p-MeC<sub>6</sub>H<sub>4</sub>, 86-7, 95.8, yellow needles;  $\text{o-O}_2\text{NC}_6\text{H}_4$ , 1-C<sub>10</sub>H<sub>7</sub>, 110-11.3, 97.5, yellow leaflets;  $\text{o-O}_2\text{NC}_6\text{H}_4$ , 2-C<sub>10</sub>H<sub>7</sub>, 87-7.8, 95.8, yellow microcrystals; 4,2-C<sub>1</sub>(O<sub>2</sub>N)C<sub>6</sub>H<sub>3</sub>, MeCH<sub>2</sub>CMe<sub>2</sub>, 31.7-2.7, 87.2, orange rods; 4,2-C<sub>1</sub>(O<sub>2</sub>N)C<sub>6</sub>H<sub>3</sub>, n-C<sub>12</sub>H<sub>25</sub>, 56.8-7.5, 94.8, yellow needles;

4,2-C1(O2N)C6H3, -CH2CH2-, 201-2, 87.5, pale yellow needles;  
 4,2-C1(O2N)C6H3, -CH2CH2CH2-, 147.7-8.6, 90.2, orange needles;  
 4,2-Br(O2N)C6H3, Me3C, 56.5-7.3, 83.0, yellow spikes;  
 4,2-Br(O2N)C6H3, PhCH2, 70.1-71.2, 91.75, yellow needles;  
 4,2-Br(O2N)C6H3, MeC6H4, 99.0-9.7, 96.7, yellow needles;  
 4,2-Me(O2N)C6H3, n-C18H37, 66.5-7.3, 94.3, yellow leaflets;  
 4,2-Me(O2N)C6H3, cyclohexyl, 62.5-3.0, 89.3, orange-yellow needles;  
 4,2-Me(O2N)C6H3, Ph, 76.5-7.5, 97.0, orange, flat needles;  
 p-O2NC6H4, Me3C, 74.7-5.5, 79.0, pale yellow needles together with  
 small amts. of (4-O2NC6H4Se)2, m. 178-9.degree.; 2,4-(O2N)2C6H3,  
 Me, 105.5-6.5, 87.6, orange needles; 2,4-(O2N)2C6H3, Et, 104.2-5,  
 96.5, orange-yellow leaflets; 2,4-(O2N)2C6H3, iso-Pr, 76-7, 86.0,  
 yellow leaflets; 4-PhC6H4, Me3C, 68.5-9.5, 75.2, pale yellow  
 leaflets together with small amts. of (4-PhC6H4Se)2, m.  
 183-4.degree., 4-PhC6H4, Ph3C, 121.5-2.5, (about) 79, yellow  
 microneedles; 1-C10H7, 4,2-C1(O2N)C6H3, 142.5-3.5, 95.4, yellow  
 needles (prepd. from C10H7SeH); The binary system  
 2-O2NC6H4SeSC6H4Me-4-2-O2NC6H4S2C6H4Me-4 (m. 73-3.8.degree.) belongs  
 to type 1. 46 refs.

CC 10 (Organic Chemistry)

IT 2-Propanesulfenic acid, 2-methylseleno-  
 4-Biphenylselenenic acid, thio-  
 Benzeneselenenic acid, 2,4-dinitrothio-  
 Benzeneselenenic acid, 4-bromo-2-nitrothio-  
 Benzeneselenenic acid, 4-chloro-2-nitrothio-  
 Benzeneselenenic acid, thio-  
 Benzeneselenenic acid, o-nitrothio-  
 Benzeneselenol, 2,4-dinitro-  
 Benzeneselenol, 4-bromo-2-nitro-  
 Benzeneselenol, 4-chloro-2-nitro-  
 Benzenesulfenic acid, o-nitroseleno-.alpha.-Toluenesulfenic acid, seleno-  
 p-Tolueneselenenic acid, 2-nitrothio-  
 p-Tolueneselenol, 2-nitro-  
 p-Toluenesulfenic acid, seleno-  
 (esters)

IT 7440-21-3, Silicon  
 (compds., org.)

L77 ANSWER 42 OF 42 HCA COPYRIGHT 2005 ACS on STN

43:19454 Original Reference No. 43:3722a-i,3723a-c Some aspects of the luminescence of solids. Kroger, F. A. (Elsevier Publishing Co.: N.Y.). \$5.50. (Unavailable) 1948.

AB Some results of exptl. work by K. are reported for the first time in this book. A no. of Mn-activated luminophors were prepd. by heating mixts. of oxides in an oxidizing atm. and in a reducing atm. The oxidized substances are more deeply colored than the products heated in a non-oxidizing atm. This effect is ascribed to an extra

absorption band produced by the Mn. The reduced products show a green luminescence band.  $Mg_2TiO_4$ :Mn was prep'd. by pptg. the hydroxides of Mg, Ti, and Mn from a soln. contg. the proper proportions of each with  $NH_4OH$  (cf. Tiede and Villain, C.A. 34, 5347.9). After drying, the mass was fired in an oxidizing atm. at 1300.degree.. Max. intensities of luminescence are reached when cooling rates of 4.degree. per h. and lower are used or when the product is annealed at 500-560.degree. for 48 h. The valency of Mn in the  $Mg_2TiO_4$ :Mn luminophor was detd. by dissolving the substance in strong HCl, passing the  $Cl_2$  liberated from the HCl by O into a KI soln., and titrating the freed I. In the annealed and slowly cooled products the valency is +4, while for quenched products it was +2 and +3 together with +4, or +2 and +4. The spectra of  $Mg_2TiO_4$ :Mn with different heat treatments and at different temps. are given. This luminescence is excited by radiation of a wave length between 2600 and 6000 Å. Cathode rays excite it only feebly. The luminescence starts diminishing at 60-100.degree. and then falls suddenly at 100.degree. to be practically quenched at 200.degree.. The effect of Mn concn. is given. Fe lowers the red luminescence of  $Mg_2TiO_4$ : Mn.

$\alpha$ - $Al_2O_3$ :Mn was prep'd. by pptg. the hydroxides with  $NH_4OH$  from nitrate soln. (cf. Randall, C.A. 32, 6948.7). After drying, the mass was fired at 1300-1500.degree., in both oxidizing and reducing atms. Products prep'd. in a reducing atm. showed no luminescence, while those prep'd. in an oxidizing atm. showed a faint red cathodoluminescence having a max. at 6500 Å. and extending from 6400 to 6650 Å. Small amts. of basic oxides in the  $Al_2O_3$  caused the formation of different modifications of  $Al_2O_3$ ; a new hexagonal structure,  $\beta$ - $Al_2O_3$ , can be obtained with  $Na_2O$ ,  $K_2O$ ,  $SrO$ ,  $CaO$ ,  $BaO$ ,  $PbO$ , and  $MgO$ . With  $Li_2O$ , a cubic structure is obtained. The spectral distribution of all the above with Mn activation is described in detail. Compds. of the binary systems of  $W_3O$  or  $Mo_3O$  with  $CaO$ ,  $SrO$ ,  $BaO$ ,  $MgO$ ,  $ZnO$ ,  $CdO$ ,  $PbO$ ,  $Na_2O$ , and  $Li_2O$  were prep'd. from  $H_2W_3O_7$ ,  $H_2Mo_3O_7$ , and compds. of the basic oxides mentioned which decomp. easily (carbonates, acetates). All methods of excitation causes the emission of the same emission band except with  $PbW_3O_7$ ; in this at -180.degree. there occur a blue and a green emission. Spectral distribution of the reflection and the emission of the tungstates and molybdates at -180.degree. are given. A correlation between the position of the absorption edge and the max. of the emission for tungstates and for molybdates is shown. The absorption, excitation, and emission of solid solns. of  $PbW_3O_7$  with  $(Ca, Sr, Ba)W_3O_7$  and of  $CaW_3O_7$ - $CaMo_3O_7$  have been studied and compn.-dependent curves constructed.  $CaW_3O_7$ - $CaMo_3O_7$  behaves as ideal solns. of the two compds. Their spectral distributions of absorption, excitation, and emission are a superposition of the bands of the components. The decrease of the luminescence of the tungstates under the influence of foreign ions is greatest for those

ions that color most deeply the crystals in which they are embedded. The quenching is caused by the addnl. absorption of the exciting UV radiation and the absorption of part of the luminescence.

Tungstates with 1% U as an activator were fired in an oxidizing atm. The excitation phenomena are attributed to two broad absorption bands, the first being the tungstate absorption with a long-wave limit near 2600 Å., the second being the U absorption covering part of the visible and extending into the UV, Ba, Ca, Cd, Li, Mg, Na, Pb, Sr, and Zn tungstates activated by 1% U are described. The temp.-dependence of some of these compds. shows normal behavior of increasing efficiency towards lower temps. All were dead at 100-150.degree.. The cathodoluminescence of the aluminates, borates, borophosphates, oxides, phosphates, silicates, stannates, and zirconates of Al, Ba, Ca, Cd, La, Li, Mg, Na, Pb, Sr, Th, Zn, and Zr, contg. 1 mol. % Ti as an activator is given. The compds. were prep'd. by pptg. the hydroxides from acetate or nitrate solns., drying, and firing in an oxidizing atm. Reducing-atm. products showed no luminescence. Hence, the luminescence effects must be attributed to quadrivalent Ti. Ti is effective in compds. of Si, Sn, Zr, and Th, but not in compds. of Al, P, or B when one of the aforementioned elements is absent. The activator, therefore, must be built in isomorphously. The spectral distributions of the absorption, excitation, and emission of the compds. mentioned are given. Temp.-dependence effects are normal. The complex fluorides of Sn, Si, and Ti activated by Ti emit yellow to orange at low temps. They are excited by light below 3100 Å. The temp.-efficiency curves of ZnS, Cd<sub>2</sub>B<sub>2</sub>O<sub>5</sub>:Mn, CdSiO<sub>3</sub>:Mn, CdI<sub>2</sub>, Zn<sub>2</sub>SiO<sub>4</sub>: Mn, (Zn,Be)<sub>2</sub>SiO<sub>4</sub>:Mn, Al<sub>2</sub>O<sub>3</sub>:Cr, silicates with Ce, glasses activated by Mn, Ce, Sn, and Cu, and CaO are given and discussed. The existing theories concerning luminescence and its quenching are reviewed in detail. Appliances and methods used are described.

IT 1314-98-3, Zinc sulfide  
(phosphors)

RN 1314-98-3 HCA

CN Zinc sulfide (ZnS) (9CI) (CA INDEX NAME)

S=Zn

CC 3 (Subatomic Phenomena and Radiochemistry)

IT 1314-98-3, Zinc sulfide 7790-80-9, Cadmium iodide  
(phosphors)

=> d 180 1-11 cbib abs hitstr hitind

L80 ANSWER 1 OF 11 HCA COPYRIGHT 2005 ACS on STN

142:71151 Methods, device and system for in vivo detection. Frisch, Mordechai; Iddan, Gavriel J.; Gilad, Zvika; Schreiber, Reuven (Given Imaging Ltd., Israel). PCT Int. Appl. WO 2004112567 A2 20041229, 31 pp. DESIGNATED STATES: W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW; RW: AT, BE, BF, BJ, CF, CG, CH, CI, CM, CY, DE, DK, ES, FI, FR, GA, GB, GR, IE, IT, LU, MC, ML, MR, NE, NL, PT, SE, SN, TD, TG, TR. (English). CODEN: PIXXD2. APPLICATION: WO 2004-IL569 20040627.

PRIORITY: US 2003-PV482450 20030626.

- AB A system and method for in vivo diagnosis are provided. A compn. including for example a radioactive marking agent and a pharmaceutically acceptable carrier is administered to a patient and an autonomous in vivo device, which may include for example an illumination source an image sensor and a radiation and/or light detector, is used to for example facilitate the difference between normal and pathol. cells in a body lumen. A block diagram and schematic illustrations of the devices and systems are shown. A flow chart depicts a method of detecting cancer cells or tissues.
- IT 7681-82-5, Sodium iodide (NaI), biological studies (as scintillator; methods, device and system for in vivo diagnosis)
- RN 7681-82-5 HCA
- CN Sodium iodide (NaI) (9CI) (CA INDEX NAME)

I—Na

- IT 1314-98-3, Zinc sulfide, biological studies (light sensor comprising scintillator including; methods, device and system for in vivo diagnosis)
- RN 1314-98-3 HCA
- CN Zinc sulfide (ZnS) (9CI) (CA INDEX NAME)

S==Zn

- IC ICM A61B
- CC 9-1 (Biochemical Methods)  
Section cross-reference(s): 8, 14
- ST device in vivo diagnosis imaging radiation light; cancer detection in vivo imaging
- IT Gamma ray  
Ionizing radiation  
X-ray

(detection of; methods, device and system for in vivo diagnosis)

IT    Antennas  
     Charge coupled devices  
     Data processing  
     Diagnosis  
     Imaging agents  
     Light sources  
     Mirrors  
     Neoplasm  
     Optical detectors  
     Optical fibers  
     Optical imaging sensors  
     Photomultipliers  
     Prisms  
         Radiation detectors  
     Scintigraphic agents  
     Scintillation detectors  
     Scintillators  
     Test kits  
         (methods, device and system for in vivo diagnosis)  
IT    7440-23-5, Sodium, biological studies    7440-28-0, Thallium,  
     biological studies 7681-82-5, Sodium iodide (**NaI**),  
     biological studies 7789-17-5, Cesium iodide (**CsI**)    13967-74-3,  
     Ce-141, biological studies  
         (as scintillator; methods, device and system for in vivo  
         diagnosis)  
IT    1314-98-3, Zinc sulfide, biological studies  
         (light sensor comprising scintillator including; methods, device  
         and system for in vivo diagnosis)

L80 ANSWER 2 OF 11 HCA COPYRIGHT 2005 ACS on STN

130:358416 Self-scintillating sheet material for radioactive species  
analysis. Goken, Garold L.; Orlandini, Kent A.; Erickson, Mitchell  
D.; Haddad, Louis C.; Seely, David C.; Hoffmann, Keith M.; Dallas,  
Susan K. (Minnesota Mining and Manufacturing Company, USA). PCT  
Int. Appl. WO 9927387 A1 19990603, 39 pp. DESIGNATED STATES: W:  
AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK,  
EE, ES, FI, GB, GE, GH, GM, HR, HU, ID, IL, IS, JP, KE, KG, KP, KR,  
KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL,  
PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, UZ, VN,  
YU, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM; RW: AT, BE, BF, BJ, CF,  
CG, CH, CI, CM, CY, DE, DK, ES, FI, FR, GA, GB, GR, IE, IT, LU, MC,  
ML, MR, NE, NL, PT, SE, SN, TD, TG. (English). CODEN: PIXXD2.  
APPLICATION: WO 1998-US19632 19980918. PRIORITY: US 1997-975007  
19971120.

AB    A sheet article includes a porous matrix or membrane comprising  
     separators for radioactive species and scintillators which  
     emit light in response to radioactive emissions

from the species. The sheet article is useful in a method to detect and quantify the radioactive species. The method comprises the steps of contacting a fluid comprising a radioactive species through or by a porous matrix or membrane or exposing such a membrane contg. the scintillator to the fluid, allowing the radioactive species in the fluid to be passively sorbed by the membrane comprising: (1) separators which sorb or react with the radioactive species, and (2) scintillators which emit light in response to the radioactive emissions, and detecting and quantifying the emitted light.

IT 1314-98-3, Zinc sulfide (**ZnS**), uses  
(scintillator, silver-activated; self-scintillating sheet material for radioactive species anal.)  
RN 1314-98-3 HCA  
CN Zinc sulfide (**ZnS**) (9CI) (CA INDEX NAME)

S==Zn

IT 7681-82-5, Sodium iodide (**NaI**), uses  
(scintillator; self-scintillating sheet material for radioactive species anal.)  
RN 7681-82-5 HCA  
CN Sodium iodide (**NaI**) (9CI) (CA INDEX NAME)

I—Na

IC ICM G01T001-20  
CC 71-7 (Nuclear Technology)  
Section cross-reference(s): 79  
ST scintillator sheet material **radiation detector liq analysis**; membrane porous matrix **radiation detector**  
IT Acrylic polymers, uses  
Crown ethers  
Cryptands  
Phenolic resins, uses  
Polyamines  
(separator; self-scintillating sheet material for radioactive species anal.)  
IT 1314-98-3, Zinc sulfide (**ZnS**), uses  
(scintillator, silver-activated; self-scintillating sheet material for radioactive species anal.)  
IT 92-71-7, 2,5-Diphenyloxazole 110-02-1D, Thiophene, derivs.  
288-42-6D, Oxazole, derivs. 7681-82-5, Sodium iodide (**NaI**), uses 7787-32-8, Barium fluoride (BaF<sub>2</sub>) 7789-17-5, Cesium iodide (CsI) 7789-24-4, Lithium fluoride (LiF), uses 7789-75-5, Calcium fluoride, uses 9002-84-0,

Polytetrafluoroethylene 9003-70-7D, Divinylbenzene-styrene copolymer, sulfonated 11120-54-0D, Oxadiazole, derivs. 12003-86-0, Aluminum yttrium oxide (Al<sub>2</sub>O<sub>3</sub>) 12233-56-6, Bismuth germanium oxide (Bi<sub>4</sub>Ge<sub>3</sub>O<sub>12</sub>) 22655-57-8, Cerium fluoride (CeF<sub>2</sub>) 26140-60-3D, Terphenyl, derivs. 36118-45-3D, Pyrazoline, derivs. 225091-25-8

(scintillator; self-scintillating sheet material for radioactive species anal.)

IT 9003-70-7, Divinylbenzene-Styrene copolymer  
(separator; self-scintillating sheet material for radioactive species anal.)

L80 ANSWER 3 OF 11 HCA COPYRIGHT 2005 ACS on STN

130:243362 A triple-crystal phoswich detector with digital pulse shape discrimination for alpha/beta/gamma spectroscopy. White, Travis L.; Miller, William H. (Nuclear Engineering Program, University of Missouri-Columbia, Columbia, MO, 65211, USA). Nuclear Instruments & Methods in Physics Research, Section A: Accelerators, Spectrometers, Detectors, and Associated Equipment, 422(1-3), 144-147 (English) 1999. CODEN: NIMAER. ISSN: 0168-9002. Publisher: Elsevier Science B.V..

AB Researchers at the University of Missouri-Columbia have developed a three-crystal phoswich detector coupled to a digital pulse shape discrimination system for use in alpha/beta/gamma spectroscopy. Phoswich detectors use a sandwich of scintillators viewed by a single photomultiplier tube to simultaneously detect multiple types of radiation. Sepn. of radiation types is based upon pulse shape difference among the phosphors, which has historically been performed with analog circuitry. The system uses a GaGe CompuScope 1012, 12 bit, 10 MHz computer-based oscilloscope that digitally captures the pulses from a phoswich detector and subsequently performs pulse shape discrimination with cross-correlation anal. The detector, based partially on previous phoswich designs, uses a 10 mg/cm<sup>2</sup> thick layer of ZnS(Ag) for alpha detection, followed by a 0.254 cm CaF<sub>2</sub>(Eu) crystal for beta detection, all backed by a 2.54 cm NaI(Tl) crystal for gamma detection. Individual energy spectra and count rate information for all three radiation types are displayed and updated periodically. The system shows excellent charged particle discrimination with an accuracy of greater than 99%. Future development will include a large area beta probe with gamma-ray discrimination, systems for low-energy photon detection (e.g., bremsstrahlung or keV-range photon emissions), and other health physics instrumentation.

IT 1314-98-3, Zinc sulfide (ZnS), uses  
7681-82-5, Sodium iodide, uses  
(triple-crystal phoswich detector with digital pulse shape discrimination for alpha/beta/gamma spectroscopy)

RN 1314-98-3 HCA  
 CN Zinc sulfide (ZnS) (9CI) (CA INDEX NAME)

S—Zn

RN 7681-82-5 HCA  
 CN Sodium iodide (NaI) (9CI) (CA INDEX NAME)

I—Na

CC 71-7 (Nuclear Technology)  
 ST phoswich detector alpha beta gamma spectroscopy; **radiation**  
 detector alpha beta gamma spectroscopy; triple crystal phoswich  
 detector alpha beta gamma spectroscopy; digital pulse shape  
 discrimination alpha beta gamma spectroscopy  
 IT Cathode **ray** tubes  
 (oscilloscopes; triple-crystal phoswich detector with digital  
 pulse shape discrimination for alpha/beta/gamma spectroscopy)  
 IT Data processing  
 Nuclear spectrometers  
**Radiation** detectors  
 (triple-crystal phoswich detector with digital pulse shape  
 discrimination for alpha/beta/gamma spectroscopy)  
 IT 1314-98-3, Zinc sulfide (ZnS), uses  
 7681-82-5, Sodium iodide, uses 7789-75-5, Calcium fluoride  
 (CaF<sub>2</sub>), uses  
 (triple-crystal phoswich detector with digital pulse shape  
 discrimination for alpha/beta/gamma spectroscopy)

L80 ANSWER 4 OF 11 HCA COPYRIGHT 2005 ACS on STN  
 120:255653 Phoswich detectors combining doubly or triply ZnS  
 (Ag), NE102A, BGO and/or NaI(Tl) scintillators for  
 simultaneous counting of .alpha., .beta., and .gamma. rays  
 . Usuda, Shigekazu; Abe, Hitoshi; Mihara, Akira (Japan At. Energy  
 Res. Inst., Tokai, 319-11, Japan). Nuclear Instruments & Methods in  
 Physics Research, Section A: Accelerators, Spectrometers,  
 Detectors, and Associated Equipment, 340(3), 540-5 (English) 1994.  
 CODEN: NIMAER. ISSN: 0168-9002.  
 AB Phoswich detectors for simultaneous counting of .alpha.- and  
 .beta.-particles and .gamma.-rays have been developed:  
 ZnS(Ag)/Au Mylar/NE102A, ZnS(Ag)/Au Mylar/BGO and  
 ZnS(Ag)/NaI(Tl) for .alpha. and .beta.(.gamma.)  
 applications and ZnS(Ag)/Au Mylar/NE102A/BGO and  
 ZnS(Ag)/Ne102A/NaI(Tl) for .alpha.- and  
 .beta.-particles and .gamma.-rays. They were prep'd. by  
 coupling a ZnS(Ag) film scintillator for .alpha.

counting with a scintillator(s) for .beta. and .gamma. counting having different rise time. In order to adjust each component of pulse height within a given dynamic range, a sheet of Au-coated Mylar (Au Mylar) was used, if necessary, as an optical neutral d. filter for lowering transmittance of scintillation of the ZnS(Ag). Characteristics of these phoswiches were exampd. by a technique of pulse-shape discrimination. Excellent discrimination among the **radiations** was attained and small tailings from each other peak were obtained for the prep'd. phoswiches.

IT 1314-98-3, Zinc sulfide (ZnS), uses  
 (scintillator material, silver-doped, of phoswich detector for simultaneous counting of alpha- and beta-particles and gamma-rays)

RN 1314-98-3 HCA

CN Zinc sulfide (ZnS) (9CI) (CA INDEX NAME)

S==Zn

IT 7681-82-5, Sodium iodide, uses  
 (scintillator material, thallium-doped, of phoswich detector for simultaneous counting of alpha- and beta-particles and gamma-rays)

RN 7681-82-5 HCA

CN Sodium iodide (NaI) (9CI) (CA INDEX NAME)

I—Na

CC 71-7 (Nuclear Technology)  
 ST **radiation** detector phoswich scintillator; pulse shape discrimination phoswich scintillator  
 IT **Radiation** counters and detectors  
 (phoswich, for simultaneous counting of alpha- and beta-particles and gamma-rays)  
 IT 7440-57-5, Gold, uses  
 (optical neutral d. filter of Mylar coated with, of phoswich detector for simultaneous counting of alpha- and beta-particles and gamma-rays)  
 IT 25038-59-9, Mylar, uses  
 (optical neutral d. filter of gold coated, of phoswich detector for simultaneous counting of alpha- and beta-particles and gamma-rays)  
 IT 7440-28-0, Thallium, uses  
 (phoswich detector contg. sodium iodide doped with, for simultaneous counting of alpha- and beta-particles and gamma-rays)  
 IT 7440-22-4, Silver, uses

(phoswich detector contg. zinc sulfide doped with, for simultaneous counting of alpha- and beta-particles and gamma-rays)

- IT 12233-56-6, BGO 64104-18-3, NE102A  
 (scintillator material, of phoswich detector for simultaneous counting of alpha- and beta-particles and gamma-rays)
- IT 1314-98-3, Zinc sulfide (**ZnS**), uses  
 (scintillator material, silver-doped, of phoswich detector for simultaneous counting of alpha- and beta-particles and gamma-rays)
- IT 7681-82-5, Sodium iodide, uses  
 (scintillator material, thallium-doped, of phoswich detector for simultaneous counting of alpha- and beta-particles and gamma-rays)

L80 ANSWER 5 OF 11 HCA COPYRIGHT 2005 ACS on STN

118:65792 Evaluation of natural **radiation** in houses built with black schist. Chen, Ching Jiang; Weng, Pao Shan; Chu, Tich Chi (Inst. Nucl. Sci., Natl. Tsing Hua Univ., Hsinchu, Taiwan). Health Physics, 64(1), 74-8 (English) 1993. CODEN: HLTPAO. ISSN: 0017-9078.

AB Natural **radiation** in houses built with black schist slabs located at an altitude of 1000 m in the mountainous southern part of Taiwan were investigated by studying the naturally occurring radionuclides in the black schist. Indoor and outdoor Rn concns. were monitored. The cosmic-ray contribution to the dose received by the inhabitants was estd. Gamma-ray spectroscopy was performed for radionuclide analyses. In-situ measurements were carried out using a survey meter coupled to a **NaI** detector. Cellulose nitrate films, **ZnS** (Ag) scintillation cells, and .alpha.-spectroscopy were used to study Rn and Rn daughters. Radiation doses due to all natural sources were calcd. and compared with that incurred in common concrete dwellings at lower altitudes.

CC 59-2 (Air Pollution and Industrial Hygiene)  
 Section cross-reference(s): 4, 8

IT Cosmic **ray**  
 (exposure to, in Taiwan)

L80 ANSWER 6 OF 11 HCA COPYRIGHT 2005 ACS on STN

113:232420 Influence of cryptands and crown ethers on ion transport and vibrational spectra of **polymer**-salt complexes. Doan, Kate E.; Heyen, Bruce J.; Ratner, M. A.; Shriner, D. F. (Mater. Res. Cent., Northwest. Univ., Evanston, IL, 60208-3113, USA). Chemistry of Materials, 2(5), 539-45 (English) 1990. CODEN: CMATEX. ISSN: 0897-4756.

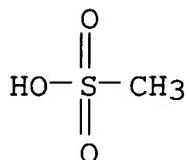
AB Complex impedance data demonstrated that addn. of 2.2.2-cryptand (I) increased the ionic cond. of NaSO<sub>3</sub>CH<sub>3</sub> in amorphous poly(ethylene

oxide) (II) but decreased that of NaSO<sub>3</sub>CF<sub>3</sub> in amorphous II. Vibrational spectroscopic and x-ray diffraction measurements indicated that the effect of I was to dissolve crystallites of NaSO<sub>3</sub>CH<sub>3</sub> into the polymer phase. The decrease in cond. for NaSO<sub>3</sub>CF<sub>3</sub>-II upon addn. of I correlated with the pptn. of a cryst. phase, presumably [Na:I][SO<sub>3</sub>CF<sub>3</sub>].

IT 2386-57-4D, Sodium methanesulfonate, complexes with amorphous polyoxyethylene 7681-82-5D, Sodium iodide, complexes with amorphous polyoxyethylene  
(ionic cond. of, effect of cryptands and crown ethers on)

RN 2386-57-4 HCA

CN Methanesulfonic acid, sodium salt (8CI, 9CI) (CA INDEX NAME)



● Na

RN 7681-82-5 HCA

CN Sodium iodide (NaI) (9CI) (CA INDEX NAME)

I—Na

CC 36-5 (Physical Properties of Synthetic High Polymers)

IT 540-72-7D, Sodium thiocyanide, complexes with amorphous polyoxyethylene 2386-57-4D, Sodium methanesulfonate, complexes with amorphous polyoxyethylene 2926-30-9D, Sodium trifluoromethanesulfonate, complexes with amorphous polyoxyethylene 7681-82-5D, Sodium iodide, complexes with amorphous polyoxyethylene 13755-29-8D, Sodium tetrafluoroborate, complexes with amorphous polyoxyethylene 116358-27-1D, complexes with electrolyte salts  
(ionic cond. of, effect of cryptands and crown ethers on)

L80 ANSWER 7 OF 11 HCA COPYRIGHT 2005 ACS on STN

103:79149 High resolution x-ray-TV-sensors. Germer, Rudolf (Fritz-Haber-Inst., Berlin, D-1000/33, Fed. Rep. Ger.). Proceedings of SPIE-The International Society for Optical Engineering, 491 (High Speed Photogr. Photonics, Pt. 1), 434-41 (English) 1985. CODEN: PSISDG. ISSN: 0277-786X.

AB Semiconductor devices are sensitive to x-rays. Array

sensors can be constructed with integrated circuits as charge-coupled devices(CCD). Their application to x-ray imaging is discussed esp. to get a high spatial resoln. This is possible with some 10-.mu.m resoln. using a CCD-sensor covered with a converter screen. Furthermore such a screen protects the CCD against radiation damage. Soft x-radiation produces most of the damage. The life time of a sensor can be enhanced by a factor of >100 if a converter screen absorbs most of the soft radiation.

IT 1314-98-3, uses and miscellaneous  
(phosphors from copper- or silver-doped, for high-resoln. x-ray-TV-sensors)  
RN 1314-98-3 HCA  
CN Zinc sulfide (ZnS) (9CI) (CA INDEX NAME)

S==Zn

IT 1314-98-3D, solid solns. with cadmium sulfide  
(phosphors from silver-doped, for high-resolns. x-ray-TV-sensors)  
RN 1314-98-3 HCA  
CN Zinc sulfide (ZnS) (9CI) (CA INDEX NAME)

S==Zn

IT 7681-82-5, uses and miscellaneous  
(phosphors from thallium-doped, for high-resoln. x-ray-TV sensors)  
RN 7681-82-5 HCA  
CN Sodium iodide (NaI) (9CI) (CA INDEX NAME)

I-Na

CC 73-11 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)  
ST semiconductor x ray TV sensor  
IT Radiation detectors  
(x-ray-TV-sensors, phosphors for high-resoln.)  
IT 7440-22-4, uses and miscellaneous  
(phosphors from cadmium zinc sulfide doped with high-resoln. x-ray-TV-sensors)  
IT 7440-23-5, uses and miscellaneous  
(phosphors from cesium iodide doped with, for high-resoln. x-ray-TV-sensors)  
IT 7440-28-0, uses and miscellaneous

- (phosphors from cesium iodide or sodium iodide doped with, for high-resoln. x-ray-TV-sensors)
- IT 1314-98-3, uses and miscellaneous  
(phosphors from copper- or silver-doped, for high-resoln. x-ray-TV-sensors)
- IT 12031-43-5  
(phosphors from europium- or terbium-doped, for high-resoln. x-ray-TV-sensors)
- IT 7440-53-1, uses and miscellaneous  
(phosphors from lanthanum oxide sulfide doped with, for high-resoln. x-ray-TV-sensors)
- IT 13597-65-4  
(phosphors from manganese-doped, for high-resoln. x-ray-TV-sensors)
- IT 7440-27-9, uses and miscellaneous  
(phosphors from rare earth oxysulfides doped with, for high-resoln. x-ray-TV-sensors)
- IT 1306-23-6D, solid solns. with zinc sulfide  
(phosphors from silver-doped, for high-resoln. x-ray-TV-sensors)
- IT 1314-98-3D, solid solns. with cadmium sulfide  
(phosphors from silver-doped, for high-resolns. x-ray-TV-sensors)
- IT 7789-17-5  
(phosphors from sodium- or thallium-doped, for high-resoln. x-ray-TV-sensors)
- IT 12339-07-0  
(phosphors from sodium-doped, for high-resoln. x-ray-TV-sensors)
- IT 12340-04-4  
(phosphors from terbium-doped, for high-resoln. x-ray-TV-sensors)
- IT 7681-82-5, uses and miscellaneous  
(phosphors from thallium-doped, for high-resoln. x-ray-TV sensors)
- IT 7439-96-5, uses and miscellaneous  
(phosphors from zinc silicate doped with, for high-resoln. x-ray-TV-sensors)
- IT 7440-22-4, uses and miscellaneous 7440-50-8, uses and  
miscellaneous  
(phosphors from zinc sulfide doped with, for high-resoln. x-ray-TV-sensors)
- IT 7790-75-2  
(phosphors, for high-resoln. x-ray-TV-sensors)

Telegraph and Telephone Public Corp., Japan). Ger. Offen. DE 2920807 19791129, 22 pp. (German). CODEN: GWXXBX. APPLICATION: DE 1979-2920807 19790522.

- AB The electrostatic latent image formed by a light-exposure on a uniformly charged photoconductive layer such as 1 .mu. Se, contg. 4% Te, and poly(vinylcarbazole) 20 .mu. is intensified by a unit on the same material comprising a 2 .mu. photoemitting field-effect layer of vapor-coated Mn-doped **ZnS** and 2nd photosensitive layer 2-3 .mu. Cu phthalocyanine with 5% 2,4,7-trifluorenone as charge-transfer complex in a vinyl chloride-vinylacetate copolymer as binder. Such layered assemblies are placed between a grounded transparent electrode of CuI or In<sub>2</sub>O<sub>3</sub>, which may be vapor-coated on one or both sides of a polyethylene terephthalate film, and a lower one, which may be the same or Ag or Cu. Application of an a.c. or d.c. voltage during exposure of the 1st photoconductive layer causes a light-emission corresponding to and intensifying the primary latent image, the intensification factor varying with the voltage. Thus, by using a surface potential of -1 kV and Xe lamp exposures with 50 .mu.s flashes, application of a -300 V field yielded intensified images.
- IT 1314-98-3, uses and miscellaneous  
(electrophotog. electrostatic latent image intensification by layer of copper phthalocyanine and manganese-doped)
- RN 1314-98-3 HCA
- CN Zinc sulfide (ZnS) (9CI) (CA INDEX NAME)

S== Zn

- IC G03G005-14; G03G013-00
- CC 74-3 (Radiation Chemistry, Photochemistry, and Photographic Processes)
- IT 1314-98-3, uses and miscellaneous  
(electrophotog. electrostatic latent image intensification by layer of copper phthalocyanine and manganese-doped)

- L80 ANSWER 9 OF 11 HCA COPYRIGHT 2005 ACS on STN  
67:121768 Scintillator screen for alpha.-ray detection. (N.  
V. Philips' Gloeilampenfabrieken). Neth. Appl. NL 6602795 19670905,  
4 pp. (Dutch). CODEN: NAXXAN. APPLICATION: NL 19660304.
- AB Inorg. scintillators [activated **ZnS**, CdS, CaWO<sub>3</sub>, NaI, CsI, KI, alkali fluorides] or org. scintillators [p-terphenyl(p-diphenylbenzene, 1,4-bis(5-phenyloxazyl)benzene, 2,5-diphenyloxazole, and 1,1,4,4-tetraphenylbutadiene] are deposited in the presence of a compd. which has 2 isocyanate groups per mol., and which after evapn. of the solvent polymerize in situ owing to atm. moisture. The preferred method of making the scintillation screen uses **ZnS**

and a polyether-polyisocyanate (Unithane 650 S) at a relative humidity of 35%, which upon completion of polymn. provides a 30-.mu. layer in 24-48 hrs. The screen is protected by aluminizing and by applying a methylpolymethacrylate protective coat.

IT 1314-98-3, uses and miscellaneous  
(alpha-ray detectors from Unithane 650 S  
polymer contg.)

RN 1314-98-3 HCA

CN Zinc sulfide (ZnS) (9CI) (CA INDEX NAME)

S—Zn

IC G01T  
CC 76 (Nuclear Technology)  
IT Scintillators  
(alpha-ray detectors from screens of, manuf. of)  
IT Unithane 650 S  
(alpha-ray detectors from zinc sulfide-contg.)  
IT 1314-98-3, uses and miscellaneous  
(alpha-ray detectors from Unithane 650 S  
polymer contg.)  
IT 12587-46-1, Alpha rays  
(detectors, from scintillator screens, manuf. of)

L80 ANSWER 10 OF 11 HCA COPYRIGHT 2005 ACS on STN

57:53516 Original Reference No. 57:10635g-i,10636a Characteristics of scintillating substances. II. Fort, Ales (Karlova Univ., Prague). Pokroky Mat. Fys. Astron., 3, 161-73 (Unavailable) 1958.

AB Decay times of scintillators are measured with photomultipliers to times down to 10-8 sec. The scintillations are generated by intense short duration pulses of accelerated charged particles. The decay of luminescence is studied by observations on 3 processes; fluorescence decay, which is temp. independent; phosphorescence, which is temp. dependent; and bimol. decay which depends on the d. of excitation. For the 1st process pulses from the anode of a photomultiplier are observed on an oscilloscope. For the 2nd the scintillation material is irradiated by periodic x-rays or ultraviolet light and the resulting periodic luminescence is observed. The intensity and phase shift of the luminescence are measured. For the 3rd the photomultiplier pulse is superimposed on its own delayed and inverted signal. Anal. expressions are developed contg. parameters which can be detd. from the above measurements. The measured properties of org., plastic, liquid, inorg., and alkali halide scintillators are given. The departure from linearity of the relation between the energy of an incident particle and the magnitude of the scintillation produced is measured and discussed.

IT 7681-82-5, Sodium iodide  
(phosphors (includes scintillators), scintillation decay in)  
RN 7681-82-5 HCA  
CN Sodium iodide (NaI) (9CI) (CA INDEX NAME)

I—Na

IT 7681-11-0, Potassium iodide  
(phosphors (scintillators), scintillation decay in)  
RN 7681-11-0 HCA  
CN Potassium iodide (KI) (8CI, 9CI) (CA INDEX NAME)

I—K

IT 1314-98-3, Zinc sulfide  
(phosphors, includes scintillators, scintillation decay of)  
RN 1314-98-3 HCA  
CN Zinc sulfide (ZnS) (9CI) (CA INDEX NAME)

S==Zn

CC 9 (Electric and Magnetic Phenomena)  
IT Styrene, methyl-, polymers with acrylamide  
(scintillators in, decay times of)  
IT 7681-82-5, Sodium iodide 7789-17-5, Cesium iodide  
(phosphors (includes scintillators), scintillation decay in)  
IT 7681-11-0, Potassium iodide  
(phosphors (scintillators), scintillation decay in)  
IT 1314-98-3, Zinc sulfide  
(phosphors, includes scintillators, scintillation decay of)  
IT 9003-53-6, Styrene polymers  
(scintillators, decay times of)

L80 ANSWER 11 OF 11 HCA COPYRIGHT 2005 ACS on STN  
53:49515 Original Reference No. 53:8854b-c Scintillation probe with  
exchangeable scintillators for the detection of .alpha.-, .beta.-,  
and .gamma.-radiation. Silar, Josef (A.S. Popov Research  
Inst. Communications Technol., Prague). Jaderna Energie, 5, 21-4  
(Unavailable) 1959. CODEN: JADEAQ. ISSN: 0448-116X.

AB A probe is described which can be used with various scintillation  
detectors: ZnS(Ag) for .alpha.-rays, a specially  
developed plastic scintillator for .beta.-rays, and  
NaI(Tl) for .gamma.-rays. The special plastic  
consists of polystyrene +1.8% p-terphenyl +0.01% NFO. The  
characteristics of the scintillators are discussed.

CC 3A (Nuclear Phenomena)  
IT Gamma rays  
    (detection of, scintillation probe for)  
IT Phosphors  
    (scintillators, plastic, .beta.-ray counting with)  
IT Phosphors  
    (scintillators, radiation detection probes contg.)  
IT 12587-46-1, Alpha ray 12587-47-2, Beta ray  
    (detection of, scintillation probe for)  
IT 100-42-5, Styrene  
    (polymers, scintillators, in .beta.-ray  
    detection probe)  
IT 92-94-4, p-Terphenyl  
    (scintillators contg., in .beta.-ray detection probe)  
IT 846-63-9, Oxazole, 2-(1-naphthyl)-5-phenyl-  
    (scintillators, in .beta.-ray detection probe)

=> d 181 1-60 ti

L81 ANSWER 1 OF 60 HCA COPYRIGHT 2005 ACS on STN  
TI A novel palladium-catalyzed coupling of thiol  
esters with 1-alkynes

L81 ANSWER 2 OF 60 HCA COPYRIGHT 2005 ACS on STN  
TI Electrode material by metal plating for secondary battery and its  
manufacture

L81 ANSWER 3 OF 60 HCA COPYRIGHT 2005 ACS on STN  
TI Analysis of sulfoxylated methyl esters (.PHI.-MES) sulfonic acid  
composition and isomers identification

L81 ANSWER 4 OF 60 HCA COPYRIGHT 2005 ACS on STN  
TI Accumulation of polyhydroxyalkanoic acid containing large amounts of  
unsaturated monomers in Pseudomonas fluorescens BM07 utilizing  
saccharides and its inhibition by 2-bromo octanoic acid

L81 ANSWER 5 OF 60 HCA COPYRIGHT 2005 ACS on STN  
TI Trace element fertilizer composition for increasing the  
nutritional quality of crops

L81 ANSWER 6 OF 60 HCA COPYRIGHT 2005 ACS on STN  
TI Solid-phase thermal polymerization of macrocyclic S-aryl  
thioester trimer with 5-t-butylisophthaloyl skeleton using  
crown ether complexes

L81 ANSWER 7 OF 60 HCA COPYRIGHT 2005 ACS on STN

- TI Biomimetic total synthesis of quinolactacin B, TNF production inhibitor, and its analogs
- L81 ANSWER 8 OF 60 HCA COPYRIGHT 2005 ACS on STN  
TI **Thiol Ester-Boronic Acid Cross-Coupling**  
. Catalysis Using Alkylative Activation of the Palladium Thiolate Intermediate
- L81 ANSWER 9 OF 60 HCA COPYRIGHT 2005 ACS on STN  
TI Coumarinic derivatives as mechanism-based inhibitors of .alpha.-chymotrypsin and human leukocyte elastase
- L81 ANSWER 10 OF 60 HCA COPYRIGHT 2005 ACS on STN  
TI Tin (alloy) electroplating baths with good storage stability for solder bonding
- L81 ANSWER 11 OF 60 HCA COPYRIGHT 2005 ACS on STN  
TI Novel Sequence-Ordered **Polymers** by Transformation of **Polymer Backbone**: Quantitative and Regioselective Insertion of Thiiranes into Poly(S-aryl **Thioester**)
- L81 ANSWER 12 OF 60 HCA COPYRIGHT 2005 ACS on STN  
TI Methods and products for analyzing **polymers**.
- L81 ANSWER 13 OF 60 HCA COPYRIGHT 2005 ACS on STN  
TI Noncyanide electroplating baths for glossy Sn-Ag alloy layers with good solder adhesion
- L81 ANSWER 14 OF 60 HCA COPYRIGHT 2005 ACS on STN  
TI The activity of substrates in the catalyzed nucleation of undercooled melts and aqueous aerosols
- L81 ANSWER 15 OF 60 HCA COPYRIGHT 2005 ACS on STN  
TI Concise polaron model to the calculation of binding energy in some strong-and weak-**coupling** polar crystals
- L81 ANSWER 16 OF 60 HCA COPYRIGHT 2005 ACS on STN  
TI Charging member, electrophotographic apparatus and charging method using the same
- L81 ANSWER 17 OF 60 HCA COPYRIGHT 2005 ACS on STN  
TI Poly(vinyl alcohol)-based polarizing plate with functional layer
- L81 ANSWER 18 OF 60 HCA COPYRIGHT 2005 ACS on STN  
TI Chemical trends in the real space pseudopotential of zinc-**blende** structure binary compounds
- L81 ANSWER 19 OF 60 HCA COPYRIGHT 2005 ACS on STN

- TI Role of Binding Energy with Coenzyme A in Catalysis by 3-Oxoacid Coenzyme A Transferase
- L81 ANSWER 20 OF 60 HCA COPYRIGHT 2005 ACS on STN  
TI Ionic Conductivity in Binary Solvent Mixtures. 1.  
Propylene Carbonate (20 mass %) + Ethylene Carbonate at 25 .degree.C
- L81 ANSWER 21 OF 60 HCA COPYRIGHT 2005 ACS on STN  
TI Standard electrode potentials of S - MaSb(s) and X<sub>2</sub> - MX<sub>b</sub>(s)  
**couples**
- L81 ANSWER 22 OF 60 HCA COPYRIGHT 2005 ACS on STN  
TI A specific inhibitor of the ubiquitin activating enzyme: synthesis and characterization of adenosyl-phospho-ubiquitinol, a nonhydrolyzable ubiquitin adenylate analog
- L81 ANSWER 23 OF 60 HCA COPYRIGHT 2005 ACS on STN  
TI Phthaloyl-glycylP-isoleucyl-tryptophan benzylamide is a potent inhibitor of human skin fibroblast collagenase with a **Ki** of 25 nM
- L81 ANSWER 24 OF 60 HCA COPYRIGHT 2005 ACS on STN  
TI Relaxation of zinc-**blende** (110) surfaces
- L81 ANSWER 25 OF 60 HCA COPYRIGHT 2005 ACS on STN  
TI Study of chemical reactions in a solid substance using optical and electrophysical methods
- L81 ANSWER 26 OF 60 HCA COPYRIGHT 2005 ACS on STN  
TI Synthesis of the cyclodepsipeptide nordidemnin B, a cytotoxic minor product isolated from the sea tunicate *Trididemnum cyanophorum*
- L81 ANSWER 27 OF 60 HCA COPYRIGHT 2005 ACS on STN  
TI Synthetic inhibitors of carboxypeptidase N
- L81 ANSWER 28 OF 60 HCA COPYRIGHT 2005 ACS on STN  
TI Conversion of substituted phosphinomethylenes containing 2-alkyl(aryl)-4,5-dihydro-5-thioxo-4-oxazolylidene fragments
- L81 ANSWER 29 OF 60 HCA COPYRIGHT 2005 ACS on STN  
TI Clostridium histolyticum collagenase: development of new **thio ester**, fluorogenic, and depsipeptide substrates and new inhibitors
- L81 ANSWER 30 OF 60 HCA COPYRIGHT 2005 ACS on STN  
TI Preparation of phosphors for a grinding-free method of dispersion using a suspension

- L81 ANSWER 31 OF 60 HCA COPYRIGHT 2005 ACS on STN  
TI Method for preparation of photosensitive cuprous halide emulsions
- L81 ANSWER 32 OF 60 HCA COPYRIGHT 2005 ACS on STN  
TI Debye-Waller factors of zinc-**blende**-structure materials -  
a lattice dynamical comparison
- L81 ANSWER 33 OF 60 HCA COPYRIGHT 2005 ACS on STN  
TI Matrix polymerization on polyelectrolyte backbones: influence of  
monovalent salts on the condensed monomeric counterions
- L81 ANSWER 34 OF 60 HCA COPYRIGHT 2005 ACS on STN  
TI Direct reversal color photographic materials and processes
- L81 ANSWER 35 OF 60 HCA COPYRIGHT 2005 ACS on STN  
TI Composite electrophotographic plates
- L81 ANSWER 36 OF 60 HCA COPYRIGHT 2005 ACS on STN  
TI The optical polaron bound in a Coulomb potential and its phase  
diagram
- L81 ANSWER 37 OF 60 HCA COPYRIGHT 2005 ACS on STN  
TI A facile way to thiosulfonic S-esters
- L81 ANSWER 38 OF 60 HCA COPYRIGHT 2005 ACS on STN  
TI Electrophotographic imaging sheets for radiographic uses
- L81 ANSWER 39 OF 60 HCA COPYRIGHT 2005 ACS on STN  
TI Semiconductor properties based upon universal tight-binding  
parameters
- L81 ANSWER 40 OF 60 HCA COPYRIGHT 2005 ACS on STN  
TI Synthesis and biological activity of a ketomethylene analog of a  
tripeptide inhibitor of angiotensin converting enzyme
- L81 ANSWER 41 OF 60 HCA COPYRIGHT 2005 ACS on STN  
TI Complexed compounds
- L81 ANSWER 42 OF 60 HCA COPYRIGHT 2005 ACS on STN  
TI Ionic radii and electronic polarizabilities in crystals with zinc-  
**blende** structure
- L81 ANSWER 43 OF 60 HCA COPYRIGHT 2005 ACS on STN  
TI Image-recording element
- L81 ANSWER 44 OF 60 HCA COPYRIGHT 2005 ACS on STN  
TI Soluble polyhalophosphazene **polymers**

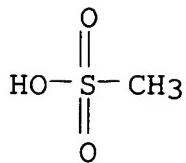
- L81 ANSWER 45 OF 60 HCA COPYRIGHT 2005 ACS on STN  
TI Lattice dynamics of several ANB<sub>8</sub>-N compounds having the zinc **blende** structure. II. Numerical calculations
- L81 ANSWER 46 OF 60 HCA COPYRIGHT 2005 ACS on STN  
TI Lattice dynamics of several AnBn-8 compounds having the zinc **blende** structure
- L81 ANSWER 47 OF 60 HCA COPYRIGHT 2005 ACS on STN  
TI Chemical analysis of **composite** pigments in oil paste and ready mixed paints
- L81 ANSWER 48 OF 60 HCA COPYRIGHT 2005 ACS on STN  
TI Electroluminescent properties of individual particles of ZnS -Cu polycrystalline samples
- L81 ANSWER 49 OF 60 HCA COPYRIGHT 2005 ACS on STN  
TI Preparation of extremely pure sulfides of cadmium and zinc
- L81 ANSWER 50 OF 60 HCA COPYRIGHT 2005 ACS on STN  
TI Infrared dielectric constant and ultraviolet optical properties of solids with diamond, zinc **blende**, wurtzite, and rocksalt structure
- L81 ANSWER 51 OF 60 HCA COPYRIGHT 2005 ACS on STN  
TI Reaction of pyrylium salts with compounds containing active methyl or methylene groups
- L81 ANSWER 52 OF 60 HCA COPYRIGHT 2005 ACS on STN  
TI Photographic emulsions containing colloidal material and alkylene oxide **polymers**
- L81 ANSWER 53 OF 60 HCA COPYRIGHT 2005 ACS on STN  
TI Methods of concentrating traces of zinc by coprecipitation
- L81 ANSWER 54 OF 60 HCA COPYRIGHT 2005 ACS on STN  
TI Becquerel photovoltaic effect in binary compounds
- L81 ANSWER 55 OF 60 HCA COPYRIGHT 2005 ACS on STN  
TI Infrared reflective nonluminescent **compositions**
- L81 ANSWER 56 OF 60 HCA COPYRIGHT 2005 ACS on STN  
TI Preparation of thiolmethacrylate esters: A study of the reaction of sodium mercaptides with methacrylyl chloride
- L81 ANSWER 57 OF 60 HCA COPYRIGHT 2005 ACS on STN  
TI Isomerization of .alpha.-methyltrimethylene sulfide into tetra-methylene sulfide and other properties of four-membered

saturated sulfides

- L81 ANSWER 58 OF 60 HCA COPYRIGHT 2005 ACS on STN  
TI Fundamentals of depilatory formulation and manufacture
- L81 ANSWER 59 OF 60 HCA COPYRIGHT 2005 ACS on STN  
TI New processes for the determination of traces of certain impurities in lead
- L81 ANSWER 60 OF 60 HCA COPYRIGHT 2005 ACS on STN  
TI Coordination studies of the analytical behavior of heavy-metal sulfides

=> d 181 2,10,31,33,34,35,38,43,55 cbib abs hitstr hitind

- L81 ANSWER 2 OF 60 HCA COPYRIGHT 2005 ACS on STN  
138:388130 Electrode material by metal plating for secondary battery and its manufacture. Okuhama, Yoshiaki; Obata, Keigo; Yoshimoto, Masakazu; Kim, Dong-hyun; Kitamura, Shingo; Nawafune, Hidemi (Daiwa Kasei Kenkyusho K. K., Japan; Daiwa Fine Chemical Co., Ltd.). Jpn. Kokai Tokkyo Koho JP 2003142088 A2 20030516, 19 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 2001-341814 20011107.
- AB The electrode material, esp. for a secondary battery anode, has a Sn or Sn alloy plated film on 1 or both side of a collector; where the film comprises continuous plated particles having av. particle size <0.5 .mu.m, and is obtained by electrodeposition from a Sn and Sn alloy plating bath, contg. (A) a divalent Sn ion with d. of 5-200 g/L, (B) .gtoreq.1 water-sol. Sn salt, or acid forming a complex with the Sn ion, or complexing agents, (C) .gtoreq.1 antioxidant with total conc. of .gtoreq.1 ppm, (D) .gtoreq.1 water-sol. Cl-6 aliph. ketone or alc. with d. of 0.5-200 g/L, and (E) .gtoreq.1 org. additive.
- IT 2386-52-9, Silver methanesulfonate 7681-11-0,  
Potassium iodide, uses 95860-13-2, Tin methanesulfonate  
114601-58-0  
(compns. of electroplating soln. in deposition of tin or tin alloys on collectors for secondary battery electrodes)
- RN 2386-52-9 HCA
- CN Methanesulfonic acid, silver(1+) salt (8CI, 9CI) (CA INDEX NAME)

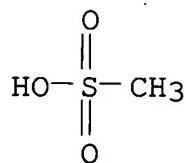


## ● Ag (I)

RN 7681-11-0 HCA  
CN Potassium iodide (KI) (8CI, 9CI) (CA INDEX NAME)

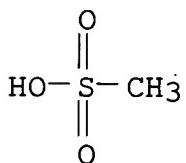
I-K

RN 95860-13-2 HCA  
CN Methanesulfonic acid, tin salt (9CI) (CA INDEX NAME)



## ●x Sn (x)

RN 114601-58-0 HCA  
CN Methanesulfonic acid, bismuth salt (9CI) (CA INDEX NAME)



## ●x Bi (x)

IC ICM H01M004-38  
ICS C25D003-32; C25D003-60; C25D005-26; C25D007-00; H01M004-02;

H01M004-04; H01M004-66; H01M004-70; H01M010-40

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

IT Phenolic resins, uses

(compns. of electroplating soln. in deposition of tin or tin alloys on collectors for secondary battery electrodes)

IT 50-00-0, Formalin, uses 50-70-4, Sorbitol, uses 50-81-7, Ascorbic acid, uses 64-17-5, Ethanol, uses 66-77-3, 1-Naphthaldehyde 67-63-0, Isopropyl alcohol, uses 67-64-1, Acetone, uses 75-07-0, Acetaldehyde, uses 80-62-6, Methyl methacrylate 90-02-8D, Salicylaldehyde, reaction product with hydroxylamine 107-21-1, Ethylene glycol, uses 107-97-1D, alkyloxy derivs. 110-65-6, 1,4-Butynediol 120-80-9, Catechol, uses 122-57-6, Benzal acetone 123-31-9, Hydroquinone, uses 149-30-4, 2-Mercaptobenzothiazole 149-91-7, 3,4,5-Trihydroxybenzoic acid, uses 527-07-1, Sodium gluconate 1300-53-4, Lead phenolsulfonate 1309-64-4, Antimony trioxide, uses 1321-67-1D, Naphthol, polyoxyalkylene derivs. 1333-39-7, Phenol sulfonic acid 1561-97-3, 2-Hydroxypropane-1-sulfonic acid 2386-52-9, Silver methanesulfonate 2809-21-4 5138-18-1, Sulfosuccinic acid 7320-34-5, Potassium pyrophosphate 7664-93-9, Sulfuric acid, uses 7681-11-0, Potassium iodide, uses 7718-54-9, Nickel chloride, uses 7720-78-7, Ferrous sulfate 7758-94-3, Ferrous chloride 7758-98-7, Copper sulfate, uses 7772-99-8, Stannous chloride, uses 7803-49-8D, Hydroxylamine, reaction product with salicylaldehyde 9002-92-0, Polyoxyethylene lauryl ether 9003-35-4, Formalin-phenol copolymer 9016-45-9, Polyethylene glycol nonylphenyl ether 10025-91-9, Antimony trichloride 10031-62-6, Tin sulfate 10102-45-1, Thallium nitrate 10124-36-4, Cadmium sulfate 10124-43-3, Cobalt sulfate 13464-58-9, Arsenous acid 18282-10-5, Tin dioxide 21651-19-4, Stannous oxide 26590-31-8, Cresol sulfonic acid 30938-57-9, Catecholsulfonic acid 39464-70-5 66027-93-8, Indium sulfamate 84142-18-7 95860-13-2, Tin methanesulfonate 96244-65-4, Tin phenolsulfonate 103427-19-6 114601-58-0 126235-19-6D, 2-alkyl derivs. 130920-75-1 130920-76-2 142174-65-0, Emulgen B 66 260803-19-8 528560-56-7  
(compns. of electroplating soln. in deposition of tin or tin alloys on collectors for secondary battery electrodes)

L81 ANSWER 10 OF 60 HCA COPYRIGHT 2005 ACS on STN

132:111560 Tin (alloy) electroplating baths with good storage stability for solder bonding. Takeuchi, Takao; Yoshimoto, Masakazu; Obata, Keigo; Aoki, Kazuhiro; Nawafune, Hidemi (Daiwa Kasei Kenkyusho K. K., Japan; Ishihara Yakuhin Co., Ltd.). Jpn. Kokai Tokyo Koho JP 2000026991 A2 20000125, 23 pp. (Japanese). CODEN: JKXXAF.  
APPLICATION: JP 1998-195729 19980710.

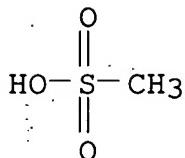
AB The baths contain (A) sol. Sn salts or mixts. of Sn salts and salts of Pb, Ag, Zn, Bi, In, Cu, or Ni, (B) monoamines

R<sub>2</sub>N(CH<sub>R</sub><sub>1</sub>CO<sub>2</sub>M)(CHR<sub>3</sub>R<sub>4</sub>) [R<sub>1</sub> = H, C<sub>1-10</sub> (un) substituted hydrocarbyl; R<sub>2</sub>-R<sub>3</sub> = H, C<sub>1-8</sub> (un) substituted hydrocarbyl; R<sub>4</sub> = H, CO<sub>2</sub>M, SO<sub>3</sub>M; R<sub>1</sub> and R<sub>2</sub> may form ring; M = H, alkali metal, NH<sub>4</sub>] and/or their salts, and (C) nonionic, anionic, cationic, and/or amphoteric surfactants. The baths give films with good surface smoothness.

IT 2386-52-9, Silver methanesulfonate 7681-11-0,  
Potassium iodide, uses 53408-94-9, Tin(II)  
methanesulfonate 54253-62-2 82617-81-0  
95860-12-1, Lead methanesulfonate 255909-34-3  
(tin (alloy) electroplating baths with good storage stability for  
soder bonding)

RN 2386-52-9 HCA

CN Methanesulfonic acid, silver(1+) salt (8CI, 9CI) (CA INDEX NAME)

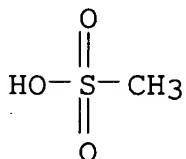


● Ag(I)

RN 7681-11-0 HCA  
CN Potassium iodide (KI) (8CI, 9CI) (CA INDEX NAME)

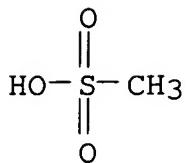
I-K

RN 53408-94-9 HCA  
CN Methanesulfonic acid, tin(2+) salt (9CI) (CA INDEX NAME)



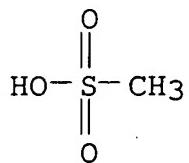
● 1/2 Sn(II)

RN 54253-62-2 HCA  
CN Methanesulfonic acid, copper(2+) salt (9CI) (CA INDEX NAME)



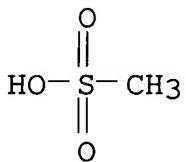
## ● 1/2 Cu(II)

RN 82617-81-0 HCA  
CN Methanesulfonic acid, bismuth(3+) salt (9CI) (CA INDEX NAME)



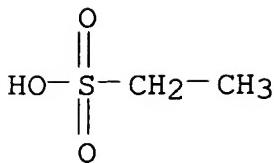
## ● 1/3 Bi(III)

RN 95860-12-1 HCA  
CN Methanesulfonic acid, lead salt (9CI) (CA INDEX NAME)



## ● x Pb(x)

RN 255909-34-3 HCA  
CN Ethanesulfonic acid, indium(3+) salt (9CI) (CA INDEX NAME)



## ● 1/3 In(III)

IC ICM C25D003-32  
 ICS C25D003-60  
 CC 56-3 (Nonferrous Metals and Alloys)  
 Section cross-reference(s): 72  
 IT 683-10-3 871-37-4 9003-11-6D, Ethylene oxide-propylene oxide copolymer, tri-stylated, phenol ethers 9056-42-2, Polyoxyethylene phosphate 31017-83-1, Polyoxyethylene laurylamine 41479-30-5 106392-12-5, Ethylene oxide-propylene oxide block copolymer 124741-31-7  
 (surfactants; tin (alloy) electroplating baths with good storage stability for solder bonding)  
 IT 56-40-6, Glycine, uses 70-49-5, Mercaptosuccinic acid 90-02-8, uses 95-53-4, o-Toluidine, uses 98-86-2, Acetophenone, uses 100-02-7, uses 109-83-1, N-Methylethanolamine 112-18-5 118-55-8, Phenyl salicylate 120-75-2, 2-Methylbenzothiazole 120-80-9, 1,2-Benzenediol, uses 140-88-5 148-24-3, 8-Hydroxyquinoline, uses 149-30-4, 2-Mercaptobenzothiazole 965-32-2 1141-88-4 2386-52-9, Silver methanesulfonate 2873-97-4, Diacetoneacrylamide 4170-30-3, Crotonaldehyde 4408-64-4, Methyliminodiacetic acid 7408-20-0, Iminodisuccinic acid 7488-55-3, Tin(II) sulfate 7558-79-4, Disodium hydrogenphosphate 7681-11-0, Potassium iodide, uses 7718-54-9, Nickel chloride, uses 7733-02-0, Zinc sulfate 7758-98-7, Copper(II) sulfate, uses 9002-92-0, Polyethylene glycol lauryl ether 9016-45-9, Polyethylene glycol nonylphenyl ether 10294-26-5, Silver sulfate 13814-97-6, Tin borofluoride 25322-68-3 32072-67-6, Sodium propynaphthalenesulfonate 32492-61-8, Ethoxylated bisphenol A 40968-90-9, Potassium tartrate, uses 53408-94-9, Tin(II) methanesulfonate 54253-62-2 57916-06-0 62972-61-6, 1H-Benzotriazole-4-carboxylic acid 66027-93-8, Indium sulfamate 82617-81-0 84142-18-7, Stannous 2-hydroxypropanesulfonate 95860-12-1, Lead methanesulfonate 96244-65-4, Tin phenolsulfonate 103427-19-6 103427-20-9 159753-00-1 184895-16-7 255909-32-1 255909-33-2 255909-34-3 255909-36-5  
 (tin (alloy) electroplating baths with good storage stability for

soder bonding)

L81 ANSWER 31 OF 60 HCA COPYRIGHT 2005 ACS on STN  
99:149632 Method for preparation of photosensitive cuprous halide emulsions. (Konishiroku Photo Industry Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 57138633 A2 19820827 Showa, 10 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1981-24668 19810221.

AB Divalent Cu ions are reduced by using a reducing agent in an aq. acidic hydrophilic **polymer** soln. in the presence of colloids of a metal salt whose solv. is smaller than that of cuprous halide and if necessary halide ions to give a photosensitive emulsion contg. cuprous halide particles. Thus, a soln. contg. Na<sub>2</sub>SO<sub>3</sub> 190 and Na<sub>2</sub>S 2.1 g/L was added to a soln. (pH = 1.0) contg. gelatin 30, CuBr<sub>2</sub> 200 g/L, and H<sub>2</sub>SO<sub>4</sub> to form CuBr crystals contg. apprx. 1 mol % CuS, the resultant emulsion was desalination treated to give an emulsion whose particle size was 0.2 .+-.. 0.08 .mu.. The emulsion was coated on a film support to give a photog. film having good UV-sensitivity. The film gave high Dmax images with good granularity.

IT 1314-98-3P, uses and miscellaneous  
(cuprous halide photog. emulsions doped with, prepn. of)

RN 1314-98-3 HCA

CN Zinc sulfide (ZnS) (9CI) (CA INDEX NAME)

S—Zn

IT 7681-11-0, uses and miscellaneous  
(photosensitive cuprous halide emulsions from solns. contg.)  
RN 7681-11-0 HCA  
CN Potassium iodide (KI) (8CI, 9CI) (CA INDEX NAME)

I—K

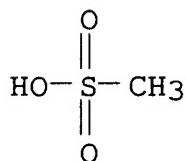
IT 7681-65-4D, solid solns. with cuprous bromide  
(photosensitive emulsions contg., prepn. of)  
RN 7681-65-4 HCA  
CN Copper iodide (CuI) (8CI, 9CI) (CA INDEX NAME)

Cu—I

IC G03C001-72; G03C005-24  
CC 74-13 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)  
IT 1314-87-0P 1314-98-3P, uses and miscellaneous 1317-40-4P  
7440-66-6P, uses and miscellaneous 12648-43-0P

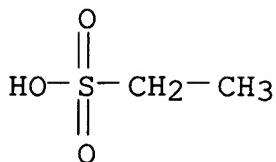
IT (cuprous halide photog. emulsions doped with, prepn. of)  
 50-81-7, uses and miscellaneous 1313-82-2, uses and miscellaneous  
 3251-23-8 7447-39-4, uses and miscellaneous 7647-10-1  
 7664-93-9, uses and miscellaneous 7681-11-0, uses and  
 miscellaneous 7733-02-0 7757-83-7 7758-02-3, uses and  
 miscellaneous 7789-45-9 10099-74-8  
 (photosensitive cuprous halide emulsions from solns. contg.)  
 IT 7681-65-4D, solid solns. with cuprous bromide 7758-89-6D,  
 solid solns. with cuprous bromide 7787-70-4  
 (photosensitive emulsions contg., prepn. of)

L81 ANSWER 33 OF 60 HCA COPYRIGHT 2005 ACS on STN  
 97:163539 Matrix polymerization on polyelectrolyte backbones: influence  
 of monovalent salts on the condensed monomeric counterions.  
 Ponrathnam, S.; Milas, M.; Blumstein, Alexandre (Dep. Chem., Univ.  
 Lowell, Lowell, MA, 01854, USA). Macromolecules, 15(5), 1251-5  
 (English) 1982. CODEN: MAMOBX. ISSN: 0024-9297.  
 AB The kinetics of AIBN-initiated polymn. of p-styrenesulfonic acid  
 [98-70-4] in a matrix of triethylenediamine-1,4-dibromobutane  
 polymer hydroxide in the presence of NaX (X = F, Cl, Br, I, ClO<sub>4</sub>, SCN, IO<sub>3</sub>, SO<sub>3</sub>Me, SO<sub>3</sub>Et, SO<sub>3</sub>Ph, SO<sub>3</sub>C<sub>6</sub>H<sub>4</sub>Me-p, OAc, O<sub>2</sub>CCHClMe,  
 and O<sub>2</sub>CCHPr-iso<sub>2</sub>) gave equil. affinity ratios agreeing with those  
 detd. by ion-specific potentiometry, confirming the applicability of  
 the ion-condensation model for polymn. on ionene polyelectrolytes.  
 The effect of solvent compn. (aq. iso-PrOH) on the kinetics was  
 explained by ionic hydration of the counterions.  
 IT 2386-57-4 5324-47-0 7681-82-5, uses and  
 miscellaneous  
 (styrenesulfonic acid polymn. in matrix of, salt effect on  
 kinetics of)  
 RN 2386-57-4 HCA  
 CN Methanesulfonic acid, sodium salt (8CI, 9CI) (CA INDEX NAME)



● Na

RN 5324-47-0 HCA  
 CN Ethanesulfonic acid, sodium salt (7CI, 8CI, 9CI) (CA INDEX NAME)



● Na

RN 7681-82-5 HCA  
 CN Sodium iodide (NaI) (9CI) (CA INDEX NAME)

I—Na

CC 35-3 (Chemistry of Synthetic High Polymers)  
 ST kinetics polymn matrix styrenesulfonate; ionene **polymer**  
 matrix polymn; salt effect polymn kinetics  
 IT Ionene **polymers**  
     (styrenesulfonic acid polymn. in matrix of, salt effect on  
     kinetics of)  
 IT Sodium halides  
     (styrenesulfonic acid polymn. in presence of ionene  
     **polymers** and, kinetics of)  
 IT Kinetics of polymerization  
     (matrix, of styrenesulfonic acid in ionene **polymer**,  
     salt effect on)  
 IT 137-40-6 515-42-4 540-72-7 657-84-1 996-30-5  
 2386-57-4 5324-47-0 7601-89-0 7647-14-5, uses  
 and miscellaneous 7647-15-6, uses and miscellaneous 7681-49-4,  
 uses and miscellaneous 7681-55-2 7681-82-5, uses and  
 miscellaneous 16987-02-3 26006-19-9D, hydroxides 82783-22-0  
     (styrenesulfonic acid polymn. in matrix of, salt effect on  
     kinetics of)

L81 ANSWER 34 OF 60 HCA COPYRIGHT 2005 ACS on STN  
 97:31217 Direct reversal color photographic materials and processes.  
 (Canon K. K., Japan). Jpn. Kokai Tokkyo Koho JP 56168653 A2  
 19811224 Showa, 7 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP  
 1980-71848 19800529.

AB Microcapsules contg. Ag halide, Ag pptn. nuclei, and a dye are  
 dispersed in a hydrophilic **polymer** to give a direct  
 reversal color photog. emulsion. The photog. material prep'd. by  
 using the emulsion is imagewise exposed and developed with a  
 developer contg. a Ag halide solubilizing agent. Thus, ZnS

was dispersed in a Ag(Br,Cl)-gelatin type photog. emulsion, the emulsion was then microencapsulated by using composite coacervation method, and the microcapsules were dyed with methylene blue, naphthalene green, and Rhodamine B. The colored microcapsules were dispersed in a poly(vinyl alc.) soln., and coated on a tiriacetate film support to give a direct reversal photog. film. The film was imagewise exposed and developed with a developer contg. NaOH, Na<sub>2</sub>SO<sub>3</sub>, Na<sub>2</sub>S<sub>2</sub>O<sub>3</sub>, hydroquinone, and NaI to give clear color images.

IT 1314-98-3, uses and miscellaneous  
     (direct-reversal color photog. materials contg.)  
 RN 1314-98-3 HCA  
 CN Zinc sulfide (ZnS) (9CI) (CA INDEX NAME)

S== Zn

IT 7681-82-5, uses and miscellaneous  
     (photog. developers contg., for direct-reversal color photog.  
     films)  
 RN 7681-82-5 HCA  
 CN Sodium iodide (NaI) (9CI) (CA INDEX NAME)

I-- Na

IC G03C007-00  
 CC 74-2 (Radiation Chemistry, Photochemistry, and Photographic and  
     Other Reprographic Processes)  
 IT 61-73-4 81-88-9 1314-98-3, uses and miscellaneous  
     7341-86-8 10018-53-8 13158-69-5 28791-43-7 82248-85-9  
     82248-86-0 82249-20-5  
     (direct-reversal color photog. materials contg.)  
 IT 123-31-9, uses and miscellaneous 1310-73-2, uses and miscellaneous  
     7681-82-5, uses and miscellaneous 7757-83-7 7772-98-7  
     (photog. developers contg., for direct-reversal color photog.  
     films)

L81 ANSWER 35 OF 60 HCA COPYRIGHT 2005 ACS on STN  
 96:208376 Composite electrophotographic plates. (Mitsubishi  
     Electric Corp., Japan). Jpn. Tokkyo Koho JP 56046588 B4 19811104  
     Showa, 4 pp. (Japanese). CODEN: JAXXAD. APPLICATION: JP  
     1974-69850 19740619.

AB An electrophotog. plate is composed of (1) a transparent support,  
     (2) a transparent conductor layer, (3) a charge carrier-transfer  
     layer, (4) a charge carrier-generating layer, and (5) an insulator  
     layer. The optical absorption coeff. of the charge carrier-transfer  
     layer is smaller than that of the carrier-generating layer.

Optionally, an ohmic contact intermediate layer may be found between the conductor and the carrier-transfer layers. Thus, a transparent support having a transparent conductor layer was coated with poly(N-vinylcarbazole), then Se-10%Te was vacuum deposited, and an insulator layer was formed to give an electrophotog. plate having good resoln. and contrast.

IT 1314-98-3, uses and miscellaneous 1335-23-5  
(composite electrophotog. plates contg.)

RN 1314-98-3 HCA

CN Zinc sulfide (ZnS) (9CI) (CA INDEX NAME)

S==Zn

RN 1335-23-5 HCA

CN Copper iodide (9CI) (CA INDEX NAME)

Component	Ratio	Component Registry Number
I	x	14362-44-8
Cu	x	7440-50-8

IC G03G005-02

ICA G03G015-00; G03G015-18

CC 74-3 (Radiation Chemistry, Photochemistry, and Photographic and Other Reprographic Processes)

IT 1306-23-6, uses and miscellaneous 1314-98-3, uses and  
miscellaneous 1335-23-5 13494-80-9, uses and  
miscellaneous 25067-59-8  
(composite electrophotog. plates contg.)

L81 ANSWER 38 OF 60 HCA COPYRIGHT 2005 ACS on STN

94:200810 Electrophotographic imaging sheets for radiographic uses.

(Katsuragawa Electric Co., Ltd., Japan). Jpn. Kokai Tokkyo Koho JP 55161245 19801215 Showa, 4 pp. (Japanese). CODEN: JKXXAF.

APPLICATION: JP 1979-67534 19790601.

AB A laminate composed of a synthetic resin film, a vacuum deposited photoconductor layer, a vacuum deposited intermediate layer, and a vacuum deposited conductor layer is adhered with another laminate having a support, a phosphor layer, and an adhesive layer to give an electrophotog. photosensitive sheet for radiog. imaging. An intermediate layer may be formed between the adhesive and phosphor layers. Thus, a laminate composed of poly(ethylene terephthalate), Se-16 mol% Te, poly(p-oxyethylene), and CuI layers was adhered with another laminate composed of poly(ethylene terephthalate), (Cd,Zn)S (CdS 50 mol%), and an acrylic adhesive layer to give a radiog. imaging sheet.

IT 1314-98-3D, solid solns. with cadmium sulfide  
(electroradiog. imaging laminates contg.)

RN 1314-98-3 HCA

CN Zinc sulfide (ZnS) (9CI) (CA INDEX NAME)

S==Zn

IC G03G005-02; G03G015-00; G03G015-22

CC 74-3 (Radiation Chemistry, Photochemistry, and Photographic  
Processes)

IT 1306-23-6D, solid solns. with zinc sulfide 1314-98-3D,  
solid solns. with cadmium sulfide 25038-59-9, uses and  
miscellaneous 25722-33-2  
(electroradiog. imaging laminates contg.)

L81 ANSWER 43 OF 60 HCA COPYRIGHT 2005 ACS on STN

84:172191 Image-recording element. Matsumoto, Masakazu; Nishide,  
Katsuhiko; Shimosawa, Akemi; Kinjo, Kikuo (Canon K. K., Japan).

Ger. Offen. DE 2515165 19751009, 51 pp. (German). CODEN: GWXXBX.

APPLICATION: DE 1975-2515165 19750408.

AB An electrorecording material giving high quality images is composed  
of a support coated with a recording layer contg. an elec.  
conductive agent, a binder, a leuco base, a phenolic resin  
, and a solid phenol deriv. contg. a sulfide, disulfide, sulfonyl,  
or sulfinyl group that is liq. at >50.degree., or a dihydric phenol  
deriv. contg. .gtoreq.1 C4-30 alkyl group and which melts at  
40-200.degree.. Thus, a dispersion prep'd. by ball-milling a  
HCHO-4,4'-isopropylidenediphenol polymer (polymd. for 5  
hr; fusion temp. 90.degree.) 1.0, Mol. Sieve 13X 5.0,  
4,4'-isopropylidenediphenol 1.5, poly(vinyl alc.) (d.p. 1000) 2, and  
water 20.5 g for 2 days and a dispersion prep'd. by ball-milling  
Crystal Violet lactone 1, Mol. Sieve 13X 5, TiO2 1, and water 13 g  
for 2 days were mixed, coated on an aluminized paper, dried, the Al  
layer was contacted with a pos. electrode, and the top layer was  
contacted with a neg. needle electrode to give a blue image which  
after storage for 2 months at 40.degree. and 80% relative humidity  
showed no change in image quality. The surface characteristics and  
recording ability also remained excellent.

IT 1314-98-3, uses and miscellaneous 7681-65-4

(electrorecording materials contg. leuco dye, phenolic compd. or  
resin and elec. conductive layer of, with improved image  
quality)

RN 1314-98-3 HCA

CN Zinc sulfide (ZnS) (9CI) (CA INDEX NAME)

S==Zn

RN 7681-65-4 HCA  
CN Copper iodide (CuI) (8CI, 9CI) (CA INDEX NAME)

## Cu-I

IC B41M; B41J; H04N; G06K; G11B  
CC 74-8 (Radiation Chemistry, Photochemistry, and Photographic Processes)  
IT Recording  
(electro-, papers contg. elec. conductive agent, leuco base, and phenolic compd. or resin for, with improved image quality)  
IT Phenolic resins  
Phenols, uses and miscellaneous  
(electrorecording materials contg. elec. conductive agent, leuco base and, with improved image quality)  
IT Zeolites  
Zeolites  
(electrorecording materials contg. leuco base, phenolic compd. or resin and, with improved image quality)  
IT 509-34-2 1552-42-7 13433-31-3 29199-09-5  
(electrorecording materials contg. elec. conductive agent, phenolic compd. or resin and, with improved image quality)  
IT 1318-10-1 1318-95-2 12173-10-3 12173-28-3 12377-07-0  
12416-09-0 12445-20-4 12510-42-8 13463-67-7, uses and miscellaneous  
(electrorecording materials contg. leuco base, phenolic compd. or resin and, with improved image quality)  
IT 409-21-2, uses and miscellaneous 1314-13-2, uses and miscellaneous  
1314-98-3, uses and miscellaneous 7429-90-5, uses and  
miscellaneous 7681-65-4 12032-44-9 18282-10-5  
20859-73-8  
(electrorecording materials contg. leuco dye, phenolic compd. or resin and elec. conductive layer of, with improved image quality)

L81 ANSWER 55 OF 60 HCA COPYRIGHT 2005 ACS on STN  
53:5093 Original Reference No. 53:882f-g Infrared reflective nonluminescent compositions. (Eltro G. m. b. H. & Co.). GB 795464 19580521 (Unavailable). APPLICATION: GB .  
AB Nonluminescent compns. which reflect light in the 7000-100,000 Å. range comprise a pigment and 2 or more compds. which may be the sulfide, selenide, or telluride of Ca, Sr, Zn, Cd, Sb, Tl, and Pb. These crystals also contain at least 1 metal of the group Co, Ni, Ag, Cu, Au, and the rare earths. A typical compn. has (a) a mixed

crystal of ZnS, 40, CdS 60, and Cu as the nitrate 0.0001 part, (b) naphthol blue, and (c) ultramarine green. The proportions are 80% a, 1% b, and 19% c.

IT 1314-98-3, Zinc sulfide  
(infrared reflective nonluminescent compns. from)  
RN 1314-98-3 HCA  
CN Zinc sulfide (ZnS) (9CI) (CA INDEX NAME)

S—Zn

IT 7681-82-5, Sodium iodide  
(phosphors (includes scintillators), Tl-contg.)  
RN 7681-82-5 HCA  
CN Sodium iodide (NaI) (9CI) (CA INDEX NAME)

I—Na

CC 3 (Electronic Phenomena and Spectra)  
IT Phosphors  
(scintillators, NaI(Tl))  
IT 81-77-6, Indanthrene 1306-23-6, Cadmium sulfide 1314-98-3  
, Zinc sulfide 1345-00-2, Ultramarine Green 7440-02-0, Nickel  
7440-22-4, Silver 7440-48-4, Cobalt 7440-50-8, Copper  
7440-57-5, Gold  
(infrared reflective nonluminescent compns. from)  
IT 7681-82-5, Sodium iodide  
(phosphors (includes scintillators), Tl-contg.)